

# TIMES AND REGISTER.

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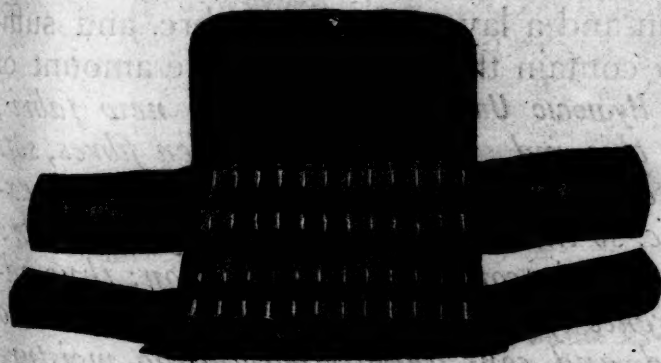
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Dr. Samuel E. Wooby, Professor of Chemistry and Public Hygiene and lecturer on diseases of children, Kentucky School of Medicine, at Louisville, on April 8th, said:

Papine was used in a case of acute dysentery of unusual severity requiring unusually large doses of opium. The effects of Papine were so purely hypnotic and anodyne that a pound was ordered, and no other form of opium was used during the entire illness. Papine is a pharmaceutical triumph.

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Corner.  
Corner and foot  
in one piece.

Western Leather Mfg. Co.  
151 & 153 Fifth Ave., Chicago.

## L. D. ROGERS, A.M., M.D.,

In a Paper, states:

A fabric, therefore, so constructed as to allow a layer of woolen fibre to lie between the skin and a layer of cotton fibre, and sufficiently open and loose as to contain the largest possible amount of air is the ideal. *The Járos Hygienic Underwear Material, a new fabric, seems beautifully adapted to this end. A layer of woolen fibres, soft and fleecy, is firmly held on one side of and in the meshes of an exceeding porous cotton fabric, so that while one extremity of a fibre lies against the skin, the other is in contact with the cotton; thus admitting of the rapid transference of all dampness of perspiration to the cotton where it is retained, and consequently leaving no moisture next to the skin to absorb and diminish the heat of the body. The importance of this subject, and the possibilities of this new fabric for the prevention of colds, and their resultant diseases, can only be appreciated when we remember the simple fact that it is impossible to take a cold so long as a healthy condition of the skin, and an even temperature of the surface of the body, are maintained.*



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With Times and Register . . . . . 7.00
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With Times and Register . . . . . 10.00
3. An American Movement: stem-winder and setter; nickel case; sweep second hand . . . . . \$9.00  
With Times and Register . . . . . 11.00

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The sweep-second is of great value, as the pulse can be taken so much more easily than with the ordinary small second hand.

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The explanation is that we use two grains Carbonate Lithium to each dram, the Lithium equivalent of eight and one-half grains Citrate Lithium.

W. T. THACKERAY & CO.,

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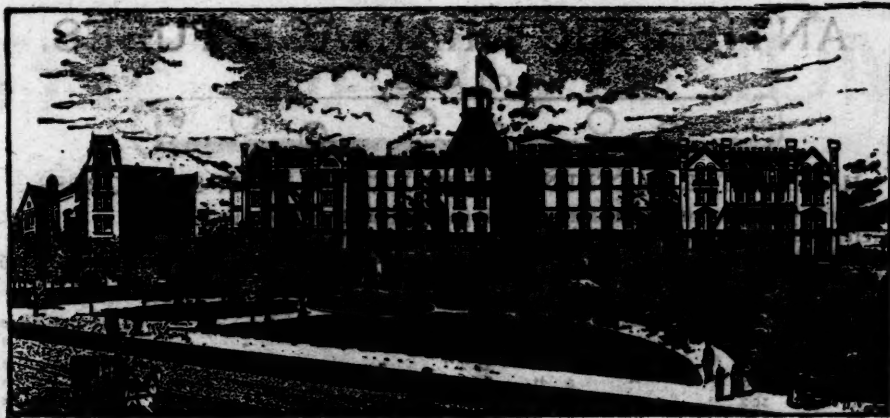
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EXPENSES, \$12 to \$30 a week.

For descriptive circular and further particulars, address

SANITARIUM

or J. H. KELLOGG, M.D., SURG., Battle Creek, Mich.

## Notes and Items.

**THE IMPORTANCE OF THE VOWELS.**—In a newspaper office, in a small town down East, says *Puck*, a mischievous devil hid all the regular vowels excepting the o's. The editor was equal to the emergency, however. Here are a few extracts from the editorials, paragraphs, etc., in the next issue:

## COOLTOWN TROMBONO.

Cooltown, Conn.

"Wo rogrot that owing to o loss of oll oor vowels bot o, thot tho Cooltown Trombono most moko shoft to do wothot tho others.

"Oor sobserobors con oxoreoso theor onjonoöto thos wok ond oor noxt copo woll look os ooshoöl."

## POOT'S CORNOR.

Moro hod o lottol lomb,

Ot's floss wes whot os snow;

Ond ovrowhor thot Moro wont

Tho lomb wes sho' to go.

The issue was a great success. Unfortunately, however, the subscribers have taken it into their heads to o the editor now.

**THE WRONG ANIMAL.**—Doctor: "I am thinking of trying an infusion of goat's blood on you."

Patient: "Why, doctor, it's my lungs that need strengthening. My digestion is all right."—*Good News*.

## "THE THING."

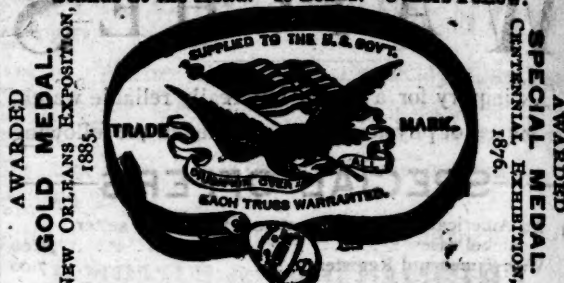
LOUISVILLE, KY., January 22, 1891.

THOS. HUNT STUCKY, M.D., Hosp. Coll. of Med., Louisville, Ky., 1880; Prof. of Surgical Pathology and Clinical Surgery in same; Visiting Surg. Louisville City Hosp.; Prof. Materia Medica School of Pharmacy for Women; Mem. Ky. State Med. Ass., Louisville Med. Soc. and Medico-Chirurgical Soc. of Louisville, writes:

"I am using Antikamnia daily, with the most gratifying and satisfactory results. It is 'the thing' in La Grippe."

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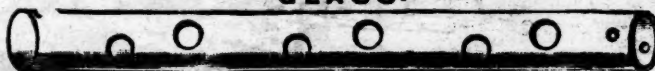
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No. 3, " 76 " " 9 " 5 "	-	-	-	-	1 40 "
No. 4, " 88 " " 9 " 6 "	-	-	-	-	1 55 "
No. 5, " 102 " " 9 " 7 "	-	-	-	-	1 70 "
No. 6, " 114 " " 9 " 8 "	-	-	-	-	1 90 "
No. 7, " 126 " " 10 " 9 "	-	-	-	-	2 10 "

## RAW CAT-GUT.

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A Complete Antipyretic, a Restorative of the Highest Order, and an Anodyne of Great Curative Power.

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DR. D. W. MCCARTHY.

SPRINGVIEW, N.B., November 25, 1899.  
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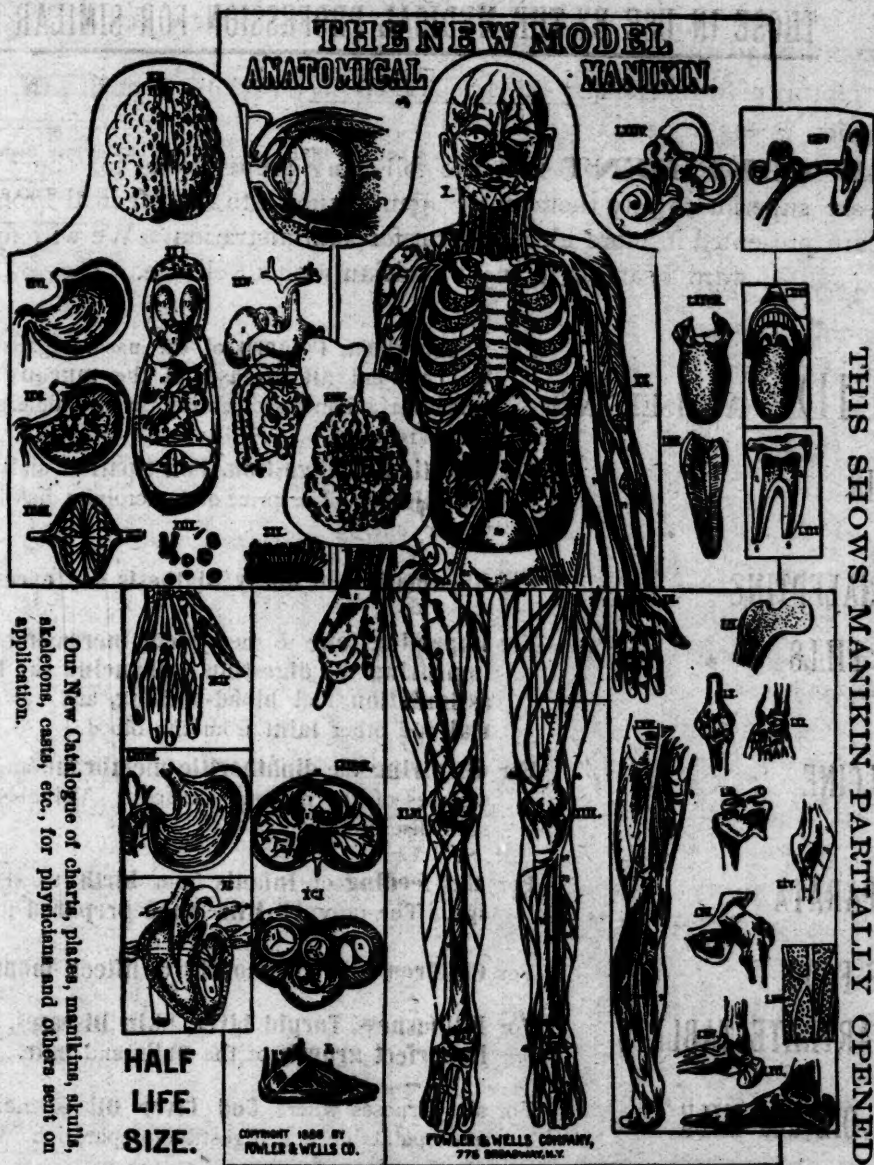
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## Address.

### THE PROGRESS OF MODERN SURGERY IN TWENTY-FIVE YEARS.

By WM. G. PORTER, M.D.,

Senior Surgeon to the Philadelphia Hospital, Surgeon to the Presbyterian Hospital, Consulting Physician to the Philadelphia Dispensary, Fellow of the College of Physicians, Fellow of the Academy of Surgery, Fellow of the American Surgical Association, etc., etc.

MR. PRESIDENT and Fellows of the Academy of Surgery: A little more than twenty-five years ago I began the study of medicine in the University of Pennsylvania. To-night, by the kind partiality of our distinguished President, I have been selected from many much more worthy of the honor to deliver the annual oration before you. In casting about me for a subject worthy of your consideration, it has occurred to me that I could not do better than present you a bird's-eye view of the more noteworthy advances which have been made in surgery during that time. To investigate them fully and at length would occupy almost as much time as they have required for their development. The first surgical clinic which I ever attended was in the present amphitheatre of the Philadelphia Hospital. The lecturer was the present foremost living American surgeon, our worthy president, Professor D. Hayes Agnew. In those days, at least in this city, the specialists were few in number, and in addition to the work to which they gave special attention they practised as general surgeons or even as general practitioners. The staff of Wills Eye Hospital, for instance, consisted of four gentlemen, not one of whom devoted his exclusive attention to diseases of the eye. To-day the staff consists of ten ophthalmic surgeons, who, with one exception, are eye specialists, or, at least, wander no farther from the eye than to the ear or throat. At that time any general surgeon would operate for cataract or strabismus or any of the ordinary operations on the eye or its appendages. To-day the general surgeon as a rule contents himself with

treating conjunctivitis or iritis, or, perhaps, the removal of foreign bodies from the eye or lids, and if anything more serious presents itself he refers it to his favored specialist. Twenty-five years ago how many specialists were there in gynaecology, otology, laryngology, dermatology, genito-urinary and venereal diseases? As I recollect it, the gynaecological clinic, so far as treatment was concerned, was about equally divided between the insertion of pessaries, the application of nitrate of silver, iodine, potassa cum calce or fuming nitric acid to the os or cervix, and the administration of astringent vaginal injections. To-day, every well organized hospital has, in addition to its medical, surgical and, perhaps, obstetrical staff, one or more of all the above specialists. In those days gynaecology was practically in the hands of the obstetricians. To-day, so numerous have become the operations of the gynaecologists that they constitute a distinct class by themselves, and, while eschewing general surgery, they have also divorced themselves from obstetrics. While specialism has thus advanced, the natural inference would be that the domain of the general surgeon was gradually but surely being contracted, but on the contrary, it has been enormously enlarged. The cavities of the cranium, of the thorax, of the abdomen, independent of the above specialties, have been explored and conquered to such an extent that it really seems as if we must now at least have reached the limit, but that is exactly what seemed to have been demonstrated twenty-five years ago. Twenty-five years from now the orator who addresses you will look back as I do now, and wonder how crude and barbarous our methods were as compared with modern science. And yet the record of twenty-five years is a noble one, and one of which we have no cause to be ashamed. Let me begin now to chronicle some of the advances and failures which have occurred during the twenty-five years last past.

In 1865, Mr. Joliffe Tufnell stated that out of ninety of the principal surgical hospitals of Great Britain and Ireland, in seven only was it the custom to immediately put up fractures by starch or other fixed material. With all the improvements which

have been made in the application of plaster of Paris to this purpose; after all that has been written on the subject; in spite of the many demonstrations which have been made of its utility, safety and comfort, it seems remarkable that this method has not made more converts, and probably to day the proportion of hospitals in which it is used has not increased since then. The discovery of the local anæsthetic effects of sulphuric ether, when used as a spray, by Dr. B. W. Richardson in 1866, was loudly heralded as a great advance in surgery. It seems now to have gone out of fashion, being but seldom used, although undoubtedly applicable to a wide range of minor surgical affections.

The treatment of cancerous tumors by the injection of acetic acid had but a short-lived notoriety, and is now no longer resorted to.

The immediate treatment of stricture of the urethra by rupture of the stricture by means of Holt's, Thompson's, and other dilators, caused a great sensation, and was extensively practised by many surgeons. The most extravagant claims were made for it. Mr. Holt himself considering that it must ultimately supersede all other modes of treatment. It was claimed that the stricture rarely returned even when after-treatment had been neglected, and after the lapse of years that the same instrument could be passed which was admissible at the time of the operation. Mr. Holt reported that he had operated in a single year on one hundred and fourteen cases without a single bad result of any kind whatever, and with only one complication, a small abscess of the penis, which arose in consequence of the density of the stricture breaking the directing rod of the instrument. "The cases embraced every variety, and occurred in private and hospital practice in patients sent to him from all parts of the kingdom and abroad." Here, then, was apparently the ideal operation for stricture—safe—speedy—radical. It certainly was very satisfactory, both to patient and surgeon, to have a stricture in a few seconds enlarged from the finest calibre to one that would carry a large-sized bougie, and to enable a patient who had been urinating only by drops to pass a full-sized stream, but the results obtained by other surgeons were not so successful. Experience demonstrated that strictures treated by this method would relapse as rapidly and as often as those treated by other methods. Accidents, such as hemorrhage, abscess, etc., resulted. Urethral fever and pyæmia were not uncommon. The method is still used, but by comparatively few surgeons, and its sphere of usefulness is certainly much more limited than its disciples maintained.

In *The British Medical Journal* of February 5, 1867, will be found an article by Joseph Lister, Esq., then Professor of Surgery in the University of Glasgow, on a new method of treating compound fractures, abscesses, etc. I cannot forbear giving a synopsis of it. "The reason that a compound fracture usually proves so much more dangerous to life, and serious in its results to the limb, is not the simple access of oxygen, but of the septic particles which always exist in the atmosphere. These act like yeast, producing decomposition in everything susceptible of it." "The truth of this has been proved by the philosophic researches of Mr. Pasteur. In a compound fracture twenty-four hours after the accident, the colored serum which oozes from the wound is already distinctly tainted with decomposition. This state of things is enough to account for all the bad consequences of the injury. By the application of carbolic acid to the wound this decomposition of the blood and other

effused fluids may be prevented. Carbolic acid forms with the blood a solid crust which prevents the access of these septic particles contained in the atmosphere, and retains for a long time its antiseptic properties. Having put up the limb comfortably, lay on the wound a piece of lint soaked in carbolic acid, and allow it to remain undisturbed. If looked at, at the end of several days, no signs of suppuration will be found. If any blush of redness occurs round the sore the lint may be removed, and the wound dressed with water having a small proportion of carbolic acid diffused in it. As carbolic acid is almost absolutely insoluble in water, but dissolves readily in the fixed oils or glycerine, these may, in some cases, prove very suitable applications. In some cases it is well not to remove the lint at all, but to cover it with a piece of very fine and thin black tin to prevent the evaporation of the volatile organic acid. A firm crust is formed by the blood, lint and carbolic acid beneath which no suppuration occurs."

How little then could even the writer of the paper have foreseen the mighty revolution in surgery and surgical methods of which this paper was the forerunner. Who would have believed that from the immortal principle proclaimed by Lister such wonderful results would have been attained. It is entirely unnecessary for me to trace the subsequent history of Listerism. You are all familiar with it. In the words of Mr. W. Watson Cheyne, "Listerism or asepticism is a great principle which has triumphantly withstood the most searching tests, and which is now a law of the first importance to the practical surgeon." The Listerian or aseptic method is the best means at present known of carrying out that law in surgical practice, but the means have always been improving and must continue to improve. The time may indeed come when the method shall have undergone an entire alteration, but nevertheless the principle underlying it will always remain the same. Whatever changes may occur in the present Listerian method, Listerism will always remain the most fundamental principle of wound treatment, and the surgeon when he makes a wound will Lister it in the fullest sense of that term. The same thing has occurred with all natural laws. When once discovered and firmly established they remain immutable, but the practical applications of these are constantly widening and improving.

Acupressure, first presented to the world by its inventor, Sir Jas. Y. Simpson, in December, 1859, in a communication to the Royal Medico-Chirurgical Society, of Edinburgh, in my earlier days was supposed by some of its advocates to be certain to entirely supplant the ligature as a means of arresting hemorrhage. Its inventor's own estimate of it shortly before his death was that, "Acupressure will one day do more for my fame than even the discovery of chloroform." In 1867 it was stated in articles by Sir James Y. Simpson and Dr. Pirrié that "upwards of eight hundred vessels have now been stopped by acupressure by the surgeons to the Aberdeen Infirmary. These have been in all kinds of serious operations, and yet in only two of them has there been any hemorrhage on removal of the needle; one of these was after removal of the leg in its upper third for medullary cancer; the second was the radial artery, hemorrhage from which was arrested at once by replacing the needle. This is quite conclusive as to acupressure being a perfectly reliable means of arresting hemorrhage. Dr. Pirrié says: "I am perfectly convinced that acupressure accelerates the healing of wounds, and that under its use, aided by



metallic sutures, the avoidance of all dressings and perfect rest of the wounded part, in many instances the largest wounds, after major operation, will heal up without the formation of a single drop of pus." Add to these recommendations that accupressure is the easiest of performance, and the quickest of all the methods of arresting hemorrhage, and that the risk from pyæmia is diminished very greatly (no case having yet occurred), and impartial men will allow that the use of the ligature should be superseded almost entirely by that of the needle.

Mr. Bryant remarked at a meeting of the Royal Medical and Chirurgical Society in 1881, "That accupressure has been almost abandoned, because in the case of several arteries it was frequently followed by secondary hemorrhage, the vessel not being occluded long enough to allow of permanent clotting. The International Cyclopædia of Surgery, in the article on Injuries of Blood-vessels, says: 'Professor Esmarch makes no mention whatever of accupressure in his Surgeons' Hand-Book,' and I think he is quite right, because, though historically of importance, it is not of much practical value as a hæmostatic measure."

Certainly, except as a temporary expedient, or in circumstances where a ligature was not at hand, few surgeons now resort to it. The employment of torsion for the arrest of hemorrhage from large blood-vessels was suggested to Amussat by the recognized fact that torn wounds do not bleed; although at once adopted by Boyer, Dupuytren, Majendie and others, it was little noticed by the surgeons of other countries until the introduction of chloroform removed any object in hurrying over an operation. Revived by Mr. Bryant in 1868, it was soon applied by some surgeons to the exclusion of all other methods for the arrest of hemorrhage.

In an article on the Safety of Torsion in Amputation, by Thos. Bryant, Esq., Surgeon to Guy's Hospital, in *The Lancet*, of March 21, 1874, he says: "On March 6 I was called upon to remove a mutilated forearm from a man aged twenty. I amputated below the elbow joint, and arrested bleeding by twisting all the arteries, with the exception of the inter-osseous, to which I applied a ligature of carbolized catgut. I could not twist this artery on account of its immediate connection with the inter-osseous membrane; at the end of six days hemorrhage took place from the stump, which was stopped by raising the limb; but as it recurred toward night, the stump was opened. It was then made out that the bleeding had taken place from the inter-osseous artery. The vessel was again tied by my dresser, and the man has gone on well since. This is the only case of secondary hemorrhage from a stump that has occurred to me since I began the practice of torsion of arteries in January, 1868, and it is interesting to know that in it the bleeding came from an artery that had been ligatured, and that the ligature was of carbolized catgut. We have now had at Guy's Hospital upwards of two hundred cases of amputations of the thigh, leg, arm, and forearm, in which all the arteries have been twisted (one hundred and ten of these having been of the femoral artery), and no case of secondary hemorrhage." And yet torsion has almost been abandoned. Few surgeons to-day would trust to it except in very small vessels, and in cases of operation in which from any cause it is necessary to save all the time possible.

The pneumatic aspirator was presented to the profession in 1869 by Dr. Dieulafoy, of Paris. In his own words: "On November 2, 1869, Professor Gubler presented in my name to the Academy of Medi-

cine an apparatus which I had named an aspirator, and a paper giving a general view of a method called aspiration. In this paper I showed how aspiration constitutes a method of diagnosis and treatment, by means of which we can proceed with certainty, and without danger, in our searching for pathological fluids, whatever may be their seat or their nature. Exploratory punctures, less sure, and sometimes dangerous, will henceforth give place to aspiratory punctures, always harmless. The most delicate organs of the economy will be traversed without any bad results, and collections of fluid hidden in the depths of the tissues will not escape our means of investigation in the future. I said in this paper that urine could be aspirated in cases of retention, and that strangulated hernia could be reduced after the aspiration of the gas and fluids which distend the intestine. I pointed out that the same process was applicable to hydrarthrosis—pericarditis, acute and chronic pleurisy, to various kinds of cysts—in one word, to effusions of every description, serous, hæmatic, or purulent, which can be searched for, found and exhausted. The truly important point, which I made prominent in my communication to the Academy of Medicine, was the principle on which this method, which includes the treatment of all pathological fluids, is based; and this principle is inseparable from two conditions, namely:

- "1. The use of extremely fine hollow needles.
- "2. The creation of a previous vacuum."

Listerism has now supplanted the treatment of collections of pus by means of the aspirator. Few surgeons to-day would be satisfied to use it in cases of strangulated hernia, unless they were seen very early indeed. But for purposes of diagnosis, for the relief of the over-distended bladder, in cases where it is impossible to pass a catheter, it remains to-day, as it was when invented, an exceedingly valuable and useful instrument, and one which should be in the hands of every surgeon.

Prof. Dittel, of Vienna, accidentally discovered that the slightest yet continuous pressure of a simple elastic thread causes absorption of the parts pressed upon, so that the thread eats its way into the structures, and this without pain. A girl died with severe brain symptoms, and it was found that the India rubber band of her hair net, which she had worn night and day, had ulcerated through the whole thickness of the calvarium, and set up meningitis. Prof. Dittel has now performed a large number of operations by means of the elastic thread or band, including five amputations of limbs. The time required for the separation of a ligatured part varies with the amount and density of the tissues which have to be divided. For example, for the separation of the mamma, from eight to twelve days are required. The above is taken from an article by Sir Henry Thompson in the *British Medical Journal*. To-day about the only use to which the elastic ligature is put is in cases of fistula in ano too deep for the safe use of the knife, and for the removal of soft growths in which the patient will not consent to the use of the knife.

Osteotomy, says MacEwen, in its broadest sense may be defined as a section of bone. It has, however, been regarded in a much more restricted sense, the term being applied to such divisions of bone as have been proposed and undertaken for the relief of deformity, for the rectification of badly-united fractures, and for the straightening of limbs affected with osseous ankylosis which are fixed in a bad position (*Osteotomy*, page 33). All sections of bone for the

relief of deformity, prior to 1852, were performed through open wounds. In that year Langenbeck made a division of the femur for ankylosis of the hip joint, by perforating the bone with a drill through a small wound in the soft parts, and then, introducing a narrow saw, divided the bone. He gave to this operation the name of subcutaneous osteotomy. In 1868, L. Stromeyer Little made use of a carpenter's chisel to divide the bone in a case of osseous ankylosis of the knee joint, working through a small wound half an inch in length. In the following year Mr. William Adams performed the operation of subcutaneous section of the neck of the thigh bone, known as Adam's operation. Previous to this only two surgeons (both American) had attempted the relief of ankylosis of the hip joint by division of the femur. By both, the thigh bone was divided just below the trochanter major, between it and the trochanter minor, with the object of getting the false joint in the axis of the limb. Neither surgeon operated subcutaneously. Ogston, May 17, 1876, divided the internal condyle of the femur with a saw, in a case of genu valgum, and Reeves, March 17, 1878, made a section of the internal condyle, in Ogston's line, with an osteotome, and on February 22, 1878, MacEwen first performed the operation above the condyle. Of six hundred and twenty-two cases of MacEwen's operation (section above the condyle) as far as can be ascertained there have been but three fatal cases reported that could in any way be attributed to the operation. Out of one hundred and ten cases of Ogston's operation only two are reported to have died, one from septic pneumonia and one from uræmia, six weeks after the section. The latter cannot be attributed to the operation (Osteotomy and Osteoclasia, by Charles T. Poore, 1884).

Esmarch's India rubber bandage and tourniquet, for the purpose of making operations bloodless, was first described by Prof. Esmarch at the Second Surgical Congress in Berlin. It was first used in England by Mr. Wm. MacCormac, in St. Thomas' Hospital, August 16, 1873. It has to-day practically superseded the use of other tourniquets, except for special cases to which it cannot be applied. The introduction of hæmostatic forceps for the suppression of hemorrhage during operations also marked a new era in surgery. Condurango, an alleged remedy for cancer, had a short lived newspaper notoriety, but it never was endorsed by the profession, although experiments were made with it, which only proved it to be utterly worthless.

The thermo-cautery of Paquelin was a distinct improvement over anything in the shape of a general cautery which had previously been devised. To Dr. Fessenden N. Otis, of New York, is undoubtedly due the credit of first demonstrating to the profession the real calibre of the male urethra. The old-fashioned idea, that where a No. 12 English bougie could be passed easily through the urethra no stricture existed, was completely exploded by his investigations, with a consequent increase in the sizes of bougies of from twenty-four to forty of the French scale, and the detection of hitherto unsuspected strictures of large calibre by means of enlarged bulbous bougies and the instruments of precision which he invented, together with a recognition of the causes of many obscure reflex nervous symptoms not previously referred to their proper cause, stricture of the urethra, often of large calibre. Since his demonstrations we can now at last hopefully expect the radical cure of stricture, certainly in a large majority of cases; not necessarily by the operation which he has devised, but because

under any plan of treatment which may be adopted the surgeon is no longer satisfied until he has restored the urethra to its normal calibre.

The revival of supra pubic lithotomy and the introduction of Dr. Bigelow's operation of rapid lithotripsy or the removal of the crushed stone at one sitting under an anæsthetic have revolutionized the treatment of stone in the urinary bladder. Certainly for the removal of morbid growths in the bladder and for purposes of exploration the supra pubic route is the one now chosen by the majority of surgeons. Prof. Bigelow's first paper on rapid lithotripsy appeared in the *American Journal of the Medical Sciences* for January, 1878. In March, 1878, three months after the appearance of Bigelow's paper in America, in a discussion following a paper by Sir Henry Thompson read before the Royal Medico-Chirurgical Society in London, the general conclusion of some of the best surgeons of England seemed to be that nothing more need be expected from lithotripsy, that perhaps even it had been pushed too far, and that in future probably it would be better to crush less and cut more. Prof. Keyes, of New York, says of it in his article on Urinary Calculus in the "International Cyclopædia of Surgery," "This operation is to-day accepted by Thompson, and is described in the last edition of his lectures, to the exclusion of old-fashioned lithotripsy, which he apparently no longer performs. Indeed, the new operation promises in a few years to displace the old one entirely, and for the most part to do away also with lithotomy for males who have passed the age of puberty."

Dr. Sayre first used his plaster jacket for the treatment of Pott's disease in 1875. Extension being made by holding the child up by the arms—the weight of the body acting as an extending force—the cast was cut down as soon as it had hardened, and was fastened by a firm bandage above the hips and by an elastic one over the thorax, to prevent interference with respiration. By January 1, 1876, the jacket had been applied in more than sixty cases with the happiest results. The application was soon modified by using the suspension apparatus and the insertion of a dinner pad.

The treatment of hemorrhoids by the injection of carbolic acid was and is extensively practised, in the first place by pile doctors and subsequently by members of the medical profession. Dr. C. B. Kelsey, of New York, contributed a paper on this subject to the *American Journal of the Medical Sciences* for July, 1885, which he says is written in response to many inquiries whether he is still in favor of the method of treatment by injection of carbolic acid which he advocated in his book published in 1884. "In a period of a little over two years Dr. Kelsey has been called upon to treat no less than 200 cases of hemorrhoids, and in only two of these cases has he found himself compelled to resort to any other proceeding than injection. Dr. Kelsey uses carbolic acid solutions of 15, 33 and 50 per cent., and in some cases the pure acid, according to the severity of the disease, in the severer cases using the stronger and in the milder the weaker solutions. The injection is performed upon different tumors at varying intervals, in one case recorded fourteen injections were performed in three days. The maximum period occupied in the cure of a bad case is from ten to fourteen weeks. The injection often caused sloughing, but the amount of sloughing was always directly proportionate to the amount and strength of the injection. Patients operated on say that the pain of the procedure, as a rule, is not greater than that caused by the ordinary hypo-



dermic puncture. For a couple of minutes there was a smarting, tense feeling, and after that no sensation whatever. This had been repeated six or eight times till the patient was cured, and the intervals between each injection were passed in absolute comfort. One patient fainted on the table from the first injection. In no case have I had an accident of a serious nature. Never any signs of embolus, never any serious sloughing or inflammation, no trace of pyæmia or hemorrhage. The 260 cases on which the paper is based are all spoken of as cured. Since this paper was published Dr. Kelsey has, we believe, practically abandoned the operation.

The discovery of the local anæsthetic effect of hydrochlorate of cocaine has made a distinct impress on the progress of modern surgery. Quite extensive operations have been performed on areas of tissue made insensible by its local distillation or hypodermic injection. That it is a method of value there can be no doubt, but that it is not free from danger has also been abundantly proven. Its precise value can probably hardly yet be estimated.

Intubation of the larynx as a substitute for tracheotomy, as suggested by Dr. Joseph O'Dwyer, has been extensively practised. It is too soon yet to prophesy what its ultimate position will be as a surgical procedure.

Among the minor surgical inventions, Morton's pure rubber bandage should not be forgotten.

Nephrotomy, an incision into the kidney for purposes other than the extraction of a calculus, is now performed for hydro-nephrosis, when the cyst refills rapidly after having been punctured for hydatid cysts under similar circumstances, or when from the number and size of the daughter cysts the contents cannot be evacuated through a small tube; for pyonephrosis, and for any case in which the kidney has been converted into an abscess, whether from the presence of calculus or tubercle. There is no doubt that surgery is indebted to Mr. Henry Morris, of the Middlesex Hospital, for the invention of the modern operation of nephro-lithotomy. He performed his first operation in 1880. Some hundreds of operations have been performed since then; but the operation of to-day practically continues as Mr. Morris left it (Greig Smith). The late Professor S. W. Gross, in a paper published in 1887, states that of sixty-three examples of attempted or accomplished nephro-lithotomy only 3, or 4.76 per cent. perished, a measure of success which is seldom attained in any other capital operation. *Nephrectomy*, or the removal of the kidney from the living body was first performed as a planned operation in the human subject by Gustav Simon, of Heidelberg, in April, 1869. Three different surgeons had preceded Simon in excising the human kidney, but without knowing the nature of the tumors they were removing until the operation had been completed. The first of these operations had been performed in 1861; the others in 1867 and 1868. The ventral method was employed in each, and all the patients died. Simon's case was the fourth in which nephrectomy was performed, and the first in which the lumbar method was adopted. The patient fortunately recovered, and from that time the operation has been recognized as a legitimate one.

*Nephrorraphy*, the operation of fixing by operation the wandering kidney in the loin was first performed by Dr. E. Hahn, of Berlin, in 1881. Professor Keen (Transactions of the American Surgical Association, Vol. VIII), gives a table of one hundred and thirty-four operations with four deaths, a mortality of about 3 per cent. Of one hundred and twenty-one cases fully

recorded there were, after three months: cured, 63; improved, 21; failed, 19.

*Splenotomy and splenectomy*, Dr. McCann, of Pittsburgh (Transactions of the American Surgical Association, Vol. V, 1887), gives a table of all the cases operated on from 1881 to 1886, inclusive, of nineteen cases in all, with thirteen recoveries. Ashhurst has collected forty-three splenectomies for disease, with thirty-one deaths, and twenty-one operations for injury or prolapse, all successful (Greig Smith).

*Cholecystotomy and cholecystectomy*, June 15, 1867, Dr. Bobbs, of Indianapolis, in an obscure case of abdominal tumor opened the abdomen, and then the tumor, which proved to be the gall bladder, and removed a number of calculi, while not knowingly intending to do cholecystotomy (he calls it lithotomy of the gall bladder), yet such it actually was. In April, 1878, Dr. Marion Sims deliberately planned and performed the operation in a case of dropsy of the gall bladder and removed about sixty stones, as well as the fluid contents, the patient died eight days after the operation, and at the post-mortem examination there were found sixteen other stones in the gall bladder. At the present time, as regards technique and results, Tait holds the leading place with a series of some twenty published cases, all successful.

Langenbuch, 1882, first successfully removed the gall bladder. The gall bladder was hypertrophied and adherent to the neighboring tissues, and contained a large number of stones, some of them adherent to the walls and threatening perforation. In twenty-two cases collected by Depaye there were only two deaths as a direct result of the operation. Thus far the mortality of cholecystectomy (under 10 per cent.) is more favorable than that of cholecystotomy (over 15 per cent.).

Hepatotomy, the name usually given to direct incision through the liver tissue after abdominal section, is the operation which most commends itself for hepatic abscess; with laparotomy the risks of wounding omentum or bowel are done away with. We see and can control the bleeding from the liver. The danger of escape of the abscess contents into the peritoneum can be met and overcome, and if they do so escape they can be mopped up, while lastly, and not least important, a second abscess can be seen and opened, as has already been done in at least one case (Thornton.) To Tait, of Birmingham, belongs the chief merit of introducing and establishing the operation with laparotomy. He had done the operation ten times when his work was published; nine times for hydatids, and once for abscess; all were successful. The advantages of this method over aspiration; puncture by trocar, leaving the canula in situ, opening by caustic or by thermo-cautery. Incision *à deux temps*, after the artificial formation of adhesions between the liver and abdominal wall are too evident for discussion.

\*Gastrotomy, for the removal of foreign bodies from the stomach, and gastrostomy for the formation of a gastric fistula by operation, were both performed more than twenty-five years ago.

Digital dilatation of the pylorus was first performed by Professor Loreta, of Bologna, on September 14, 1882. Dr. J. M. Barton has tabulated twenty-five operations by different operators on twenty-four patients; one patient having been operated on twice successfully by Professor Loreta. From the twenty-five operations there were fifteen recoveries and ten deaths, making a mortality rate of 40 per cent. Professor Loreta has since performed dilatation of the cardiac orifice of the stomach with success.

## GUNSHOT WOUNDS OF THE ABDOMEN.

The treatment of gunshot wounds of the abdomen by laparotomy is one of the latest developments of modern surgery. Up to 1885, according to Parkes, only six operations for this class of operation were recorded. Dr. Kinloch, of South Carolina, operated in 1863. Coley tells us that the first laparotomy for gunshot wound of the abdomen was by Baudens in 1836. He resected eight inches of the small bowel and united the ends by Lembert's suture. After the death of the patient, three days later, an undiscovered wound of the cæcum was found. Baudens operated a second time for wound of the transverse colon. In this case simple closure of the wound was followed by recovery. Kocher, of Berne, had a success in 1883. Among the most remarkable of laparotomies for gunshot wound was one by W. T. Bull, of New York, performed in 1885, in which no fewer than seven intestinal perforations were discovered and closed. The patient made a complete recovery. To this, in the following year, he added another success quite as remarkable. In Kocher's case, operated on three hours after the receipt of the injury, the stomach was perforated.

The statistics of abdominal section for traumatism presented at the Newport meeting of the American Medical Association by Morton, in 1889, give one hundred and ten cases of section for perforating gunshot wounds, with thirty-six recoveries, a mortality of 62 per cent. Of all penetrating gunshot wounds of the abdomen nearly 88 per cent. are fatal, therefore the total mortality, considering the nature of the injuries, the usual condition of the patient when placed on the operating table, and the necessarily tentative nature of the earlier operations, cannot be regarded as other than exceedingly satisfactory (Greig Smith).

## LAPAROTOMY FOR STAB WOUNDS OF THE ABDOMEN.

Morton's statistics, 1889, give seventy-nine cases, with forty-eight recoveries, a mortality of 39.24 per cent. This must be regarded as a very satisfactory mortality, considering the nature of the injuries (Greig Smith).

The wonderful development of cerebral surgery in the last few years, in which some of our Fellows have been largely instrumental, has been one of the most gratifying and successful evidences of the progress of modern surgery. The successful removal of intra-cranial tumors, the location of cerebral lesions and their removal by the trephine and knife, are becoming matters of daily occurrence. In the language of Prof. Charles K. Mills, "more and more has that region been narrowed which cannot be reached by the venturesome surgical explorer." The lateral aspect of the pre-frontal lobe, the entire motor area, the superior and inferior parietal lobules and the upper temporal region can, of course, be attacked with the greatest facility. In the regions difficult, yet possible, of access, lesions of large size and of displacing character will be more readily reached. The orbital surfaces of the pre-frontal lobe can be reached and large displacing lesions removed by trephining low down in the frontal bone. In Durante's case the tumor removed occupied the left anterior fossa of the cranium. Almost the entire temporal lobe, with the exception of the parts bordering on the mid-brain, is accessible. The occipital lobes have been operated on successfully. With care the great median fissure may be entered for lesions of the marginal convolutions and limbic lobe. The longitudinal

sinus has been successfully plugged and ligated. The outskirts of the ganglia have been approached, and the ventricles have been pierced. Even a tumor situated on the intra-cranial portion of the auditory and facial nerves can probably be reached and removed. Suckling and Jordan, Bennett May, Horsley and Weir have looked, during operation, with the eyes of the flesh on the foramen magnum itself. Absolutely invisible then are only the middle region of the base and its bordering convolutions, the corpora quadrigemina and pons oblongata.

The modern treatment of hydrophobia by the method of Pasteur, and the still more modern treatment of tuberculosis, surgical as well as medical, by the method of Koch, have aroused more interest, popular as well as professional, than anything that has occurred in the broad realms of medicine since the discovery of vaccination. I quote the following from an editorial article in a leading Philadelphia newspaper of last week:

## IMPORTANT MEDICAL ANNOUNCEMENT.

Prof. Lister, perhaps the most distinguished pathologist living in England, delivered a lecture at King's College Hospital, on his return from a visit to Berlin, where he had exceptional opportunities for seeing Prof. Koch's work, not only with regard to tuberculosis, but also in general bacteriology. What he says of the first subject presents little that is new to the public, except, perhaps, that he emphasizes the points that have already been presented by other medical men. He professes absolute belief in the value of Dr. Koch's lymph as a *diagnostic* agent and as a cure in some cases of tubercular trouble, and suggests more hope of its being a cure for consumption than most of his conferees.

To the general public, however, the conclusion of his address is more interesting. He told his auditors of the promising results obtained by Koch concerning two of the most dreadful diseases that afflict mankind: diphtheria and lockjaw. He saw animals suffering from these diseases apparently cured by injections of certain unnamed substances. Further, he saw animals that had been treated with these substances who were proof against contagion or inoculation by the same diseases, though applied in a concentrated form. But to the medical mind the statement that this newly-discovered curative was "an inorganic chemical substance as easily obtained as any article in the *Materia Medica*" is the most surprising. Some physicians have long suspected that both the destructive diseases named are produced by living organisms, and probably by vegetal organisms. That any substance, especially an inorganic one, should cause the death of these organisms in the tissues of the body without causing injury to the much more delicate and higher organized animal on which they feed, is a theory which medical men will, very probably, be slow to accept. Yet Prof. Lister not only states that he has seen these results, but offers the hope that a similar substance may be obtained for the cure of tuberculosis.

In the same number of the *British Medical Journal* in which this address is printed is an article by another prominent pathologist, Dr. Russell, of Edinburgh, in which—but with proper caution—he charges the existence of cancer to the presence in the tissues of another organism, a fungus allied to the yeast-plant. If the next few years shall develop cures for four of the most dreadful diseases with which the human race is afflicted—consumption, cancer, diphtheria and lockjaw—the marvelous advance of antiseptic surgery, to which Prof. Lister himself has contributed so much, will be rivaled by these later marvels.

Time fails me to even allude to many of the suggestions of modern surgery, or of brilliant operations which have been performed, but whose value have not been established, and I have purposely refrained from entering the domain of the gynaecologists, with whose wonderful performances and brilliant successes we are all familiar.

When we consider the improved mortality after all operations, the result of Listerism, the gospel of cleanliness, and an improved technique, the hitherto hopeless cases which are now daily relieved from suffering and restored to health and usefulness, by the per-



formance of operations that twenty-five years ago were either absolutely condemned, obscurely hinted at, or not even conceived, we must acknowledge that surgery has progressed, that human suffering has been relieved and human life has been prolonged, to an extent never before dreamed of in such a space of time, and yet we seem to be only on the threshold of new discoveries and of new methods.

## Original Articles.

### THE SURGICAL ANTISEPTICS.

BY BENJAMIN T. SHIMWELL, M.D.,

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THE object of this work is to bring under consideration the value of aseptic and antiseptic surgery. This is done to clear up an amount of indefiniteness in the use of the methods for the treatment of wounds of all characters. The technique of an antiseptic dressing does not seem to be as clearly understood as it should. The use of bichloride of mercury, the dusting of iodoform and placing of iodoform or any other gauze, does not constitute an antiseptic dressing. Here it is that the criticisms of some arise. This is not entirely confined to the family physician who makes no pretence to surgery, but applies to many who class themselves amongst operators more or less renowned.

To make this subject clear the various antiseptics have been carefully considered, probably not in their true order according to some, but according to the writer's work and observations. This has not been done without appreciating the mannerisms of others. Surgeons may differ about antiseptic dressings and the like, and each may be right in his own argument. Success lies in the thoroughness of application of a dressing. The preparatory steps may be diametrically opposite those of another, and still give as good results. The result lies in the manner and care of using what one has. Experience has been the teacher in this case. So, any dogma given by any single person is not absolute, though based on theory and practice. It is as he sees it, yet the aggregation of experience is apt to be right, and consequently safe to follow.

While the practice underlying this article is positive and based on considerable experience, credit is always given to one who can honestly assert a fact.

Lawson Tait and Mr. Bantock use nothing but boiled water, and their results, while seeming strange at first and apparently contrary to the theory of antiseptics, have brought all thinking laparotomists to the same conclusion. Still their theory is the true one, being prevention of sepsis. It is asepsis, not antiseptics.

It is not intended to enter into a consideration of the species of organisms concerned in suppurative change. Neither is it to discuss the seeming difference between experimenters in the laboratory and the clinician at the operating table.

Clinically it is not a question whether acute mammary abscess starting deep in the structures is due to staphylococcus, or that the more superficial arises from the streptococcus.

The study of the entrance of these organisms into the tissues of the human body, setting up their various actions, gives us the key-note for the proper treatment of wound surfaces.

The entrance of organisms into wounds is by means of direct contact. The possibility of infection from the air is exceedingly slight, for careful experimenta-

tion shows that they exist in it in so slight a degree as hardly to be considered factors.

Their residence in the epidermis of the body and non-destruction is the most common cause of infections; then the contact of operators, instruments and dressings furnishes the balance, or they aid by their imperfections the development of these bodies, and then they find their way into the wound to a pabulum sufficient to sustain them.

The true reason of success lies in the fact that it is easier to destroy them out of the body than in it. The proper preparation of the patient's surface and everything in contact will accomplish this. The thickened epidermis about the wound edge is a favorite seat for germs. This epidermis is increased in thickness by the antiseptic used, and furnishes shelter and protection from the antiseptic; then warmth and moisture do the rest.

Why acute abscesses start seems difficult to explain. There is no possibility of their origin from germs brought by the blood; but by direct contact of germs passing through the cutaneous and mucous surfaces, then carried or developed in the lymphatics. There is at some point on the cutaneous or mucous surfaces an abrasion, and through this defect do the organisms find their entrance. It is purely a question which has the greatest vitality, the body or the organism.

Experiments on animals have shown that when micro-organisms were introduced into the circulation, and any part of the body was injured, there was an invasion of these micro-organisms into the injured tissues. Their action was modified according to the length of time they were in the circulation; their number and vitality being evidently lessened the longer they were in contact with the blood. Yet the same organism when injected into healthy non-injured animals gave negative results, with its prompt destruction.

While discussing the advantages and disadvantages of the various antiseptics, and while the tendency is to credit the drug used with the results, we must not overlook the importance of careful operative work. If any advance has been made by this new method, it has been aided by the amount of care exercised in the operative procedure, by quickness of work, neatness, lessened tendency to injure tissue, and close coaptation of edges. These have aided, slight though they seem to the casual observer, in bringing this method to perfection. While fair results would be got in almost every case, by the use of antiseptics alone, much better endings are obtained where care is taken. Any man who has had the opportunity to see the old and the new will readily appreciate the value of this statement. Look at the care exercised by the laparotomist incising the abdominal wound, the bringing of tissue to tissue, and see the results. The work of to-day is done for results, not for the hope of what may be, as it was in the past. Appreciating the value of this, we work but for a definite ending. Amputations are done, to heal under one dressing. There is no day or hour set for the suppurative stage, no tension to be relieved, no secondary fever; and how little is hemorrhage to be dreaded? Wounds are closed with a care that is due to experience of results.

Joseph Lister, noticing the favorable results that followed in subcutaneous wounds, claimed that this was due to the fact that they were not in contact with the air; therefore, a definite cause must be present in the air that came in contact with external wounds, causing suppuration.

He then, in 1867, arguing on this basis, began the use of carbolic acid ; to destroy the infective germ and by this reach the same end as in the subcutaneous wound. In 1870 he gave to the world his dressing for wound treatment, which now has entirely gone out of practice.

Then, as it was proved that the disturbance in wounds was due to the micro-organisms, it became necessary to devise a dressing of sufficient value to possess antiseptic power, minus irritation. Antiseptics were numerous, yet more data were necessary to reach the place that it has to-day. Then to Koch is the honor due for the perfection we now possess.

The advance made by Koch over Lister and his followers lies in the proving of the fact that even laudable pus is the product of a specific coccus. This idea was advanced twenty-five years before by C. Huster, but as he could not definitely prove his theory, it was not received with credit.

As healthy plants and healthy human and animal bodies are free from micro-organisms, it is certainly to the epidermis, fluids and tissues, that protection from invasion is due ; but the moment this epidermic surface is injured, exposure by contact is possible. There is no doubt, though, that many internal diseases are due to micro-organisms.

If this is a fact, then it is our object to so protect the parts from contact with micro-organisms that entrance is not possible. Means must be devised to prevent an entrance, for if they should have reached the tissues, though every effort may be made to destroy them, it is possible that, though partly devitalized, they may renew their life with as much vigor as before. The acme of success is in prevention, not in arrest. Thus, not only must the parts be clean, but everything in contact be the same—operators, assistants, instruments, and dressings.

The ability of the system to throw off septic virus, lies, in a certain extent, in the quantity and quality of blood brought to the part.

The transmigration of the leucocytes has been proved to be a factor. Metchnikoff, by careful observation of the leucocytes, has proved that they feed like amœbæ, and while omnivorous in their appetite, have a special fondness for bacteria. These are taken into their protoplasmic substance and digested. It is by this that bacterial action is limited. He terms them "phagocytes." Though this theory is disputed, the fact is still present that the leucocytes are factors, whether they do or do not act as he says.

This serves to explain certain results that were hard to harmonize with the aseptic treatment of wounds.

The results are, all things being equal, dependent on the lymph thrown out, for in it are the leucocytes that come in contact with the virus. On these grounds Lister thinks that unprepared silk may be used with comparative impunity. The ability of the leucocytes to penetrate between close bodies allows of their passing in between the strands of silk, therefore they are able to destroy any organisms that are present or liable to enter. Still, he says, it would be wiser to sterilize the silk.

#### ASEPSIS AND ANTISEPSIS.

The study of wounds, their healing, suppuration, and destruction of tissue, has shown that some definite causal factor must be present. This is proved by the study of the micro-organisms. It is not the micro-organism that is the factor, but the product formed in the course of its growth or multiplication. This product is the cause of sepsis. The non-presence

of this organism in a wound surface, represents an aseptic condition ; but when contamination has taken place, and it is a necessity to restrain its growth and results, we have present a septic state ; and the means taken to destroy these organisms are called antiseptics.

The type of an aseptic wound is in the fracture of a bone, union taking place without suppuration. The healing of a wound may not be by the first intention, yet still be aseptic ; it may be hindered by lack of care in the coaptation of tissue. But the possibility of securing an aseptic condition should only intensify the effort to so place the parts that this result may be gotten quickly.

Operations may be placed in this condition prior to any interference, by taking the necessary means to so clean the parts that the organisms do not find either a place or means for existence. Any deviation from these conditions, which is shown by the presence of inflammation and its consequences, changes this into the septic state with its consequent disturbances.

This brings us to the study of antiseptics. They embrace everything which is applicable to the parts with a capability of destroying the infective germ. The action of the antiseptic may be aided by means taken to prevent the presence of such germs or of food for their development. The lessening of injury to tissue, the removal of tissue or of secretions which may by their presence furnish a ground for germal existence or growth, assist in converting a septic into an aseptic state. This opens a field which is exceedingly large. It can be covered by two propositions: (1) Cleanliness. This is, in all that appertains to the wound or its surroundings, cleaning away all discharges, removal of debris, seeing to the proper vitality of tissues and the exclusion of any septic material. (2) All means used in the production of the first are classed under antiseptics. They render all that comes in contact with them aseptic.

The means used for the purpose of rendering surfaces and wounds aseptic, and maintaining this condition afterwards, are classed under the heads of lotions and dressings. Some combine the double advantage of being in both classes. Each plays its part, directly, as it is more or less efficient.

#### LOTIONS.

*Bichloride of Mercury.*—Of all antiseptics, this drug has best stood the test of time and outranks all others. It is the type of antiseptics having the power not only to destroy the germ but also the ova. No substance is a true antiseptic unless it possesses the power to do both.

Koch showed that the bichloride was apt to be rendered inert by decomposition through the presence of albumen. This is overcome by combination with chloride of sodium or a weak acid.

Solutions of bichloride, to be permanent, should be combined with chloride of soda. Some say this must equal the weight of the bichloride, others that it should be ten times the weight of the sublimate.

Laplace has advised the combination of tartaric acid, to overcome this decomposition or combination with albumen. To make a solution 1-1,000 he advises:

Hydrarg. bichloridi.....	gr. xv.
Acidi tartaric.....	3j. gr. xv.
Aq. destil.....	Oij.

The importance of these combinations is seen. The solution is brought into contact with blood and serum, possibly in large quantities, and if not so combined, it is possible that complete disinfection may not have taken place.



Corrosive sublimate is free from odor and non-irritant, though where strong solutions are used, irritation of the skin may occur. Wound secretions decrease and pus cavities sweeten rapidly under its use. It is, to day, the most perfect antiseptic known.

If the proper care has been exercised in every step of the technique, a wound dressed by this method will heal under the first dressing. If suppuration or inflammation should occur, there is no question but negligence has been present somewhere in the procedure.

It is used in varying strengths—1-500, 1-1,000, and 1-2,000. In ordinary wound dressing the 1-2,000 is the usual strength for irrigation. The others are used for cleaning the patient's body and the hands of operator and assistants. The towels used around the seat of operation are wrung out of 1-1,000.

The toxic possibilities of bichloride must not be forgotten. This occurs in a fair proportion of cases, usually where repeated use of the drug is called for. One of the most common is in intra-uterine and vaginal injections. The first symptom is usually enteritis. For cavities where retention is apt to take place, the proper strength is 1-10,000. The bichloride cannot be used to disinfect instruments on account of chemical action on the metal.

Lister, in speaking of the use of boiled water for abdominal work, as advocated by Lawson Tait and Mr. Bantock, thinks that it would be advisable to render the water more effective against germs by using bichloride in the strength of 1-10,000. While advising 1-500 bichloride for wound surfaces, to be irrigated in the last steps of the operation by 1-1,000, he deprecates its use in such strong solutions as 1-500 to articular surfaces. His experience has proved it too irritating for synovial membranes.

He also looks forward to the time when irrigation of wound surfaces will not be necessary, and that perfect closure will be possible without drainage. This is not possible, he thinks, in the present state of aseptic treatment. A means less irritating than the present is a necessity for this end. This opinion is probably based on the fact of the superiority of the bichloride over the carbolic acid, which he advocated.

Hot solutions are more effective than the same solutions when cold.

**Peroxide of Hydrogen.**—This is being advocated as an active germicide, effective and non-irritant.

It comes in a 15-volume solution. It is applicable to all infected surfaces and sinuses. The septic tissue is brought, in a few applications, to a sterile state. It gives, on application, a peculiar ebullition, which continues until exhaustion or sterilization takes place. It is used in full strength, or diluted. There is no pain on its application. It is generally applied with a sprayer of hard rubber or glass. The frequency of repetition is governed by the condition of the parts. A whitish pellicle is left after application.

It seems to have no action on animal cells, but has a very energetic action upon vegetable cell microbes. It has been very effective in diphtheria and aphthous conditions of the mouth.

There is no doubt that it is an exceedingly effective antiseptic. There is a weaker antiseptic preparation of this drug under the name of glycozone, for internal use. Its stomachic antiseptic effect is marked.

Care should be taken that a reliable preparation be got. It is liable to change by too frequent handling. It should be kept in a cool place. It is not applicable to fresh wounds, but to surfaces that are septic in nature; sinuses that are difficult to reach, and indolent ulcers, specific and non-specific. It has been used

with remarkable success in acute purulent dacryocystitis. I have seen it used in an obstinate multiple abscess of the neck, due to caries of the lower jaw, that had responded but very slowly to bichloride solution. The results were immediate—the discharge lessened at once, and closure of the sinuses took place. It is advised to be used diluted, rather from economy than any fear of danger. It can be applied by wetting cloths with it, and then covering them with some impervious covering.

**Carbolic Acid.**—This is a product of the distillation of coal tar. It is seen either in acicular crystals or crystalline masses; white or colorless when perfectly pure; reddish even when slightly impure, or turning so on exposure. It is deliquescent, and soluble in 21-33 parts of water. Alcohol, ether, chloroform, glycerine, and the essential oils, dissolve it freely.

Its first use as an antiseptic in wound dressing was by Lemaire, in 1860. He failed to make it successful. It was then taken up by Lister, who, after various modifications, developed the "Listerian method" of treating wounds. This then became the sole method of treatment. As the knowledge of antiseptics and of wounds increased, other antiseptics were introduced; yet, to the use of this drug, is the credit due of opening the new era in surgery.

Water has not a strong affinity for it, and the acid is readily given off, causing tingling and irritation of the skin. It is better to mix glycerine with the acid first, then add the water. The watery solutions are of two strengths, one being 5 per cent., the other 2½ per cent.

The 5 per cent. is usually used for disinfecting the hands of operators and assistants, also the parts included in the operation. Sponges, silk, and drainage-tubes are kept in a solution of this strength.

The 1-40 solution is for irrigating the wound during operation, washing the sponges used in the operation; also, for keeping the instruments in. The addition of glycerine makes the acid soluble, and prevents its volatilization.

In wounds that are markedly septic, the 1-5 solution has been used. Carbolic oil is a solution in olive oil in varying proportions.

The 5 per cent. is the strength used for keeping catgut. Koch has proved that solutions of carbolic acid in oil are practically inert against germ life. Therefore, catgut, instruments, etc., that have this solution applied to them, have no antiseptic properties; though, when oily solutions are applied to animal tissues, they give up part of the acid to the water of the tissues, before the antiseptic properties of the acid can be developed.

It is a reliable antiseptic in comparatively weak solutions, as 1-20, and 1-40 may be depended upon. The complete admixture with all the secretions, and its non-escharotic effect, allow of its complete penetration into all parts of the wound surface; thereby thorough disinfection is obtained.

The greatest objection to the use of carbolic acid is the local irritation it excites. It forms a compound with the albumen of the tissues, therefore it is necessary to use greater quantities to get complete disinfection. This, then, sets up an irritation of the capillaries, with consequent serous exudation, which is directly in proportion to the irritation. The exudation of serum is the great obstacle to perfect antiseptics, therefore, when carbolic acid is used, extra precaution must be made for proper drainage. This not only forms, by its presence, a nidus for germ

growth, but interferes mechanically with perfect union.

Irritation of the skin is apt to follow when dressings are used, such as eczema, erythema and numbness of the skin.

Its volatility is another objectionable feature. This fact interferes with true antiseptics. It requires frequent change of dressings, which is contra-indicated, for the perfect application of this theory lies in non-interference with a properly dressed case. The dressings are soon saturated by the discharges. They are then rendered useless by the absence of a sufficient quantity of the antiseptic. The use of the mackintosh keeps the parts moist, and this, with the absence of sufficient acid, has a tendency to produce the condition which it is the object to prevent.

The toxic qualities of the drug are mostly due to idiosyncrasy, yet withal its use in great quantities in large cavities needs watching. Children are very susceptible to it, and women more than men. The effects vary from slight nausea and gastric distress to profound collapse. The urine will show the characteristic condition. There is no specific treatment.

Lister has had but two cases of poisoning. His mode of using it is different from the common procedure. He, in fact, brings but little acid in contact with the wound, rather using it on all things that are used in the operation. By this means it is readily understood how little liability there would be to toxic effects.

These few disadvantages have been factors in the superseding of the acid by other agents as efficient, if not more so, with none of its defects.

*Silico Fluoride of Soda.*—Neudorfer speaks highly of this compound. He prepared it in 2 to 5 per cent. mixtures of gelatine; then inoculated it with full-grown yeast spores. With both strengths it remained free from germs. He claims that this established it as one of the few inorganic chemical antiseptics.

It has been used to a considerable extent for operations on the eye, in the strength of grains  $\frac{1}{2}$  to water f3j, but has been discarded as having no advantage over boracic acid.

I have used it largely in operations, especially in cervical adenitis in young children, where the pus cavity was seated deep in the muscles of the neck, and where there was a possibility of retention. The strength varied from  $\frac{1}{2}$  to  $1\frac{1}{2}$  grains to the ounce of water. It gave good results, but in a series of experimental operations in the abdomen, where fecal extravasation was present, when this drug was used to cleanse off the intestines, the results were bad; while the free use of hot distilled water, or weak solutions of bichloride gave the opposite. It is non-toxic and non-irritant.

*Chloride of Zinc.*—Its restraining germicidal strength is 1-50. It is, therefore, classed amongst the weakest germicides, but clinical experience shows that it is of considerable value on infected surfaces.

It is used in a 10 per cent. strength. It is soluble in water, and caustic in stronger solutions. It is generally used on pus-forming surfaces. It destroys with certainty all germs, forming with the albumen a white, translucent film which restrains further infection, limits exudation, protects underlying tissues, and will resist for many days any contamination. This is the objection to its use on fresh surfaces. It is of considerable value on surfaces about the anus and mouth, where it is impossible to maintain a perfect dressing.

Kocher speaks highly of a weak solution, 1-500, for irrigation of pus cavities. This is continued until

the cavity is perfectly clear, then the application of an antiseptic dressing ends in a perfect healing of the cavity.

The combination of the power to destroy the germs and to restrain the further development of these organisms makes it an antiseptic of considerable value.

*Creoline.*—This is a product of English coal by dry distillation. It has been advocated in place of carbolic acid, which it is likely to supersede. It has not the marked germicidal effect that was first claimed for it. It is not effective in exudations containing albumen in less than 1-100, but as it is not as toxic as carbolic acid it can be used in stronger solutions. It was advocated as non-toxic, but this has been disproved by experience, though the cases may probably have been due to idiosyncrasy.

It is not soluble in water, forming an opaque emulsion. This is the objection to its use as a disinfectant of instruments. It is useful to disinfect the hands, as it is not irritating like carbolic acid. Its principal application has been in obstetrics, for which it has been highly commended; and it has been used to wash out cavities and as an irrigant. It is employed in the strength of 0.2 to 5 per cent.

#### DRY DRESSINGS.

*Iodoform.*—This is the ter-iodide of formyl. By the combination of formyl, which modifies the action, it becomes more or less anodyne in its effect. It is not perceptibly soluble in water, but imparts to it a sweetish taste; is soluble in 80 parts of alcohol at 59°, in 12 parts of boiling alcohol, 5.2 parts of ether, and in chloroform, benzol, fixed and volatile oils.

Its action on the tissues is not definitely fixed. Binz holds that it is dissolved in the fatty tissues. The iodine, therefore, being disengaged, unites to form iodides and iodates.

Hogges thinks the free iodine unites with the albumen; by so doing it forms salts.

Moleschott thinks it is decomposed in the blood, and the free iodine in its nascent state has very energetic affinities.

This is a field that requires more experimental work to reach a positive conclusion; still the consensus of opinion is that the virtue of iodoform lies chiefly in the iodine.

Laboratory work showed the growth of all pathogenic germs despite its presence. The contradiction lies in the difference between experimental and clinical results. The change iodoform undergoes when in contact with living tissues, with the liberation of iodine, renders germ growth inert. Ptomaines are capable of generating pus without the presence of micro-organisms, but its admixture with iodoform previous to infection prevents pus formation.

The use of this valuable drug is not devoid of danger, and it should be kept constantly in mind that certain toxic effects are apt to arise, not only complicating the present condition, but also endangering the patient's life.

Absorption may occur if used too freely. After an experience of some thousands of surgical cases of all characters without one case of poisoning, I am forced to believe that it lies mostly in an idiosyncrasy. There is no doubt that probably many of the so-called cases could be traced to the condition of the wound and its surroundings, and that the apparent toxicological symptoms were septic rather than those of iodine. I have seen but one case. This was in the service of a colleague. The objective symptoms closely resembled scarlatina. The skin was profusely covered with an eruption that was apt to deceive.



The subjective symptoms were not marked. The temperature was low. The predisposition is most marked in elderly subjects.

The eruption may be papular, then pustular, affecting especially the hand, face and back. It may resemble an erysipelatous blush. Sometimes bullæ, ecthyma, or anomalous pustules are present, also petechiæ and purpura.

The constitutional symptoms are rise of temperature, which is usually high, headache, loss of appetite, rapid pulse, and low tension of vessels. Profound depression may occur, and death takes place in collapse. Others may develop marked mania, and in some melancholia is a symptom. There is no antidote for this condition. The drug must be discontinued. Reliance must be placed in stimulants and diluents to promote the secretions. Arsenic has a beneficial effect on the skin in these cases.

The value of this drug is indisputable, and it ranks first of all in the dry powder dressings. It promotes union, prevents the tendency to heat, redness, swelling and pain. The secretions are modified in quantity and character, being serous rather than purulent. It is claimed by some to have an irritant effect. I have not seen this myself, but rather the reverse, a distinct analgesic action. It is also claimed that where large surfaces have to be filled by granulations it does not act quite as well. Experience does not show this. It is rather due to faulty technique. Where secretions are present, then an absence of iodoform is found; this shows that its renewal is demanded to accomplish the anti-putrefactive action.

The most efficient way is to apply it directly to the wound in sufficient quantity. This gives better results than the use of iodoform gauze, which is indefinite in quantity. It is best laid on by a sprinkler, which applies it more evenly. It is important in the treatment of open wounds that, after thorough cleansing of the surface, the iodoform must come in contact with every portion of the wound; if not, it is possible that a certain amount of putrefactive change may occur.

This explains, possibly, why the treatment of pus cavities does not, at times, give prompt results; it is in the impossibility of getting the iodoform into complete contact with every burrowing sinus.

For superficial wounds, and, in fact, for those of more importance, iodoform in collodion 1-10 is an exceedingly good dressing. This is based on the fact that there is little serous exudation expected, and that the wound surface is perfectly clean; then close coaptation prevents the exudation of serum to any extent.

Iodoform in ether injected into pus cavities after cleansing is followed in many cases by prompt recovery. This is somewhat painful, and to obviate this glycerine has been substituted for the ether.

**Iodol.**—The disagreeableness of iodoform caused chemists to look for a substitute which possessed the active principle, with a lessening of its disadvantages. This was found in iodol. It is a grayish-white powder, which darkens by age. It contains 85.90 per cent. of iodine; this is less than that of iodoform, which has 96 per cent. It has an advantage which compensates, in that it gives off the iodine more freely.

It is antiseptic, deodorant, and anæsthetic. It has a slight escharotic action, forming a crust, which aids in protecting the parts. Notwithstanding these qualities, it has not succeeded in displacing iodoform.

The clinical results have been good, still but little is used, comparatively, instead of iodoform. It is

soluble in alcohol, chloroform, and ether; but slightly soluble in water. It is generally used in powder; but can be applied in solution, in collodion, and as a gauze.

As a solution:—

Iodol.....	5ss.
Spt. vini. dil.....	3j.
Glycerini.....	3j 3vj.
Aq. destil.....	3iij 5j.

As a gauze:—

Iodol,	
Chloroformi .....	āā gr. xlv.
Glycerini.....	3j 3vj.
Spt. vin. dil .....	3iiss.
Aq. destil.....	3iij 5j.

The gauze is to be impregnated with this solution.

As a collodion:—

Iodol.....	3iiss.
Spt. vini. dil .....	3iv 3vj.
Pyroxylin.....	3j 3vj.
Ol. ricini.....	3j 3vj.
Ether sulph.....	3ij gr. xv.

**Salicylic Acid.**—This acid crystallizes in needle-shaped form. It has no odor. It is soluble in alcohol, ether, and in hot, but not cold water. Its solubility in cold water is increased by neutral salts. By the addition of 8 parts of boracic acid, 10 parts of the salicylic acid can be dissolved in 100 parts of water. The boracic acid should be dissolved in hot water, then the salicylic acid added to the hot solution. It must be filtered when cool to remove undissolved crystals.

It was introduced into surgery by Thiersch, of Leipzig, as a substitute for carbolic acid. It was thought to have as efficient germicidal action as carbolic acid; but experience has not sustained this. It has the advantage of not being offensive or irritating. Its germicidal strength is 1-200. It can be used dry with very good results; but on wounds that are expected to heal by first intention it is contra-indicated, as it interferes with coaptation mechanically. It has the disadvantage of not adhering firmly to the parts; therefore, if much secretion is present, it is liable to be washed away, leaving parts of wound surface exposed.

Cavities packed with it, and then covered with salicylic cotton may remain as long as one or two weeks without decomposition taking place. It has not given any toxic effects.

It has been used with very happy results in cancer, gangrenous and sloughing wounds; it is used dry, covering the surface entirely.

Salicylated cotton is made in two strengths, 4 and 10 per cent. As alcohol takes up salicylic acid in large quantities, this is used diluted as the menstruum to charge the cotton; a certain proportion of glycerine is added to retain the acid, and keep it from shaking out. To make a 10 per cent. strength take:

Glycerine.....	2 parts by weight.
Water.....	100 " " "
Alcohol .....	20 " " "
Salicylic acid.....	2 " " "
Absorbent cotton.....	20 " " "

After the acid is dissolved by gentle heat, the cotton should be laid flat in the dish, layer on layer; after ten minutes it should be removed, laid flat, and dried in a warm room. To increase its antiseptic action it should be dipped in a 10 per cent. solution of the acid in glycerine, then applied.

It has been used largely in the antiseptic treatment of burns. The burn is washed in carbolic acid, and then covered with salicylic cotton. This is an excellent method of treating this injury; less pain, swelling, and less tendency to evil cicatrization than by the older methods. It also obviates the distress due to frequent handling.

Neudorfer says "That it caused intense burning in sensitive patients, lasting from five minutes to two hours." To overcome this, he combined oxide of zinc, 3 parts, with 1 of acid.

**Boracic Acid.**—This comes in glittering, scaly crystals. It is soluble in 26 parts of cold and 3 parts of warm water, and freely in alcohol.

It has been highly praised as an antiseptic and deodorant. It arrests putrefactive and fermentative changes; it is non-irritant and non-toxic, and has the advantage of being very cheap. It has an important place in Lister's method, who considers it as effective as carbolic acid, with none of its disadvantages. It is also less irritating to the skin than salicylic acid. It can be used in saturated solution on lint to fresh wounds, or to arrest decomposition in gangrenous, sloughing, or ill-conditioned surfaces. Its most effective use is in the form of boracic acid lint. The lint or cotton is made by steeping either in a hot saturated solution; this, when dried, is about double its former weight. It contains about 15 per cent. of the acid, which is a very desirable strength. The acid is intimately incorporated with the substance of the fiber, and is free from loose particles of the crystals.

Mr. Lister's directions for applying the boracic acid dressing to ulcers is as follows: "Clean the sore and surrounding skin thoroughly. This is done by using freely on the sore a solution of chloride of zinc, gr. xl to f̄ij of water, and then washing the skin with a strong watery solution of carbolic acid, which is used on account of its remarkable power of penetrating the epidermis. This step having taken place, the boracic dressing is applied. A piece of oiled silk protective, of sufficient size to cover the sore and slightly overlap the surrounding skin, is dipped in a saturated boracic acid solution and applied; over this a piece of boracic lint, large enough to extend for an inch or more beyond the protective on all sides, this is retained in place by a bandage."

He has also advised it in rodent ulcer. He combines boracic acid and white wax, each 1 part; paraffine and almond oil, each 2 parts. The boric acid and oil are added to the melted wax and paraffine, and the whole stirred in a mortar until it thickens, then set aside until it cools, after which it is rubbed in the mortar until it acquires the consistency of an ointment. This is thinly spread on a fine rag, and is applied to the wound. The oil separates and is absorbed by the lint placed over the dressing, while a firm plaster remains, attached to the skin, which is easily removed, if necessary.

Its use in purulent discharges of the ear is well known.

It may be used in all the various forms and combinations in which carbolic acid and salicylic acids are used as antiseptics.

It is a part of Thiersch's solution, the "boro-salicylic lotion." This consists of salicylic acid 2, boracic acid 12, and hot water 1,000 parts.

It is non-toxic and bland. It can be used in the abdominal cavity, if desirable, without injury. It is used in cavities where toxic effects are feared from retention. Wounds should finally be washed with a bichloride solution before they are closed.

**The Double Cyanide.**—This combination of Lister is meeting with considerable favor. It is composed of cyanide of potassium, cyanide of mercury, and sulphate of zinc, mixed in solution, in quantities proportioned to their atomic weight, precipitated and further prepared. It is non-irritating to the skin, and, being non-soluble, is not washed out by the secretions.

When employed for charging a dressing, it is diffused by means of a pestle and mortar in a solution of mercury (1-4,000), in sufficient abundance to drench the fabric thoroughly, for which 4 imperial pints to 100 grains of the salt will be found adequate. This will give a per cent. of between 2 and 3 of the cyanide to the dry gauze. The gauze should always be used moist; and, if it be prepared for immediate use, the process of drying may be omitted. It can be kept moist by wrapping it in a piece of mackintosh or wax paper. If got from the manufacturers, it should be wet again with the bichloride solution.

Prof. Dunstan, of London, has prepared this compound in a more definite manner. It now contains double the quantity of the cyanide of mercury. Lister feels confident of the value of this compound as an antiseptic dressing.

**Bismuth.**—The subnitrate of bismuth is used as an antiseptic dressing. It has a limiting power over secretions, combined with its antiseptic qualities. Its special field is in its application to fresh wounds. It has little value over the adjacent surface. It can be made into a watery solution, and then applied to the surfaces. Exudation ceases in twelve to thirty-six hours; the wound is then closed, without any need for drainage. It can be dusted over small surfaces, and soon combines with the secretions and forms a paste; this usually answers without further dressing.

If the secretions still persist, the bismuth is dusted on frequently until the discharge stops.

It can be used by dipping gauze into a 10 per cent. mixture of bismuth, then the moist gauze is applied, covered with cotton, and some impervious dressing over all.

If used in unlimited quantities, it will give its toxic effect, characterized by acute stomatitis.

The salicylate of bismuth has been used as an antiseptic.

#### MATERIAL.

**Gauze.**—There are two ways of keeping a wound aseptic:

1. The dry method.
2. The moist method.

It is necessary, to keep wounds in this condition, that certain antiseptics shall be combined with some material, so that anything in contact with the surface will lose its power to injure. The best material to use for this purpose is what is known in the shops as cheese cloth. It is a soft, meshy, and inexpensive material, and, when deprived of the oil it contains, has the property of rapid absorption.

Twenty-five yards are boiled, for at least an hour, in a vessel filled with sufficient water to cover the material. To this is added two pounds of washing soda. It is then washed thoroughly in cold water, and run through a wringer. It is now ready for impregnation by any antiseptic desired.

Corrosive sublimate gauze is made by taking the wet gauze and immersing it in a sufficient quantity of corrosive sublimate solution, 1-1,000, for twenty-four hours, then run through a wringer, dried and put in sealed jars until used. This can be folded in such a manner that it can be cut to any size required.



This gauze ranks highest of all the antiseptic dressings; it can be used either dry or moist. If it has been made any length of time it had better be reimmersed in a 1-1,000 bichloride solution before using.

The dry method: Chemical sterilization with exsiccation.

After the operation is finished, and the patient carefully cleaned of all blood or other discharges, the gauze is applied to the parts. No mackintosh or other impervious material is used; the object is that every particle of moisture shall be readily taken up, the surface kept dry, and the exudates, being sterilized, will then rapidly exsiccate and give further protection. A few layers of iodoformized gauze laid first on the line of incision will hasten the drying, especially if there has been much secretion.

The moist dressing is applied where it is desirable to keep the parts moist; where it is thought that inspissation may take place and the drains fill up and interfere with their object. The gauze is then wet in 1,000—1-2,000 bichloride solution, wrung out and applied; over this is placed a piece of mackintosh or wax paper; this prevents evaporation and the dressing will keep moist for a long period.

Mackintosh can be substituted by rubber-tissue; wax paper is excellent; in fact, the ordinary wrapping paper will answer the purpose. If these are not used, then the dressings will have to be kept wet by instilling into them carbolic acid or mercurial lotion. The preference should be given to the bichloride 1-3,000. I have seen very good results from this treatment, not only in closed wounds but in those where healing was by the process of granulation. The use of bichloride either dry or moist sometimes sets up an angry dermatitis; this modifies very readily. The gauze can then be diluted to the desired strength by washing in boiled water, or substitution of other dressings can be made; cosmoline or any bland ointment will soon cause the inflammation to abate.

Iodoform gauze is made by taking the moist gauze and working iodoform into the meshes. The loose gauze is placed in a clean basin and the iodoform sprinkled over and rubbed into it with the hand until it is uniformly yellow; the excess is then shaken off. The gauze will then contain 10 to 20 per cent. An ounce of iodoform ought to impregnate four or five yards. This dressing can be used anywhere except in the mouth.

Lister wisely condemns the use of sterilized gauze in place of that which is antiseptic by means of the drug therein contained. The ground he takes is good; a dressing must be of such a character that if the discharges impregnate it they should be rendered harmless by means of the antiseptic contained in its substance.

*Sponges.*—One of the simplest and most effective methods of preparing sponges is that suggested by Dr. H. A. Kelly.

Sponges costing about two cents apiece by the pound answer all purposes.

They are first laid in a cloth and pounded lightly to break up, loosen and remove the coarser grit. They are next immersed in a solution of hydrochloric acid (commercial), one drachm to the pint, and left twenty-four hours. They are taken from this and washed until they no longer give the water a yellowish color; they are carefully handled all this time to separate all lumps and spicula which can be detected by eyes or fingers. They are next transferred to 1-1,000 bichloride solution for twelve hours, and from this transferred to a 3 per cent. watery solution of carbolic acid for preservation.

Sponges once made aseptic can be used after operations if they are freed from fibrine. This can be accomplished by thoroughly washing with green soap, rinsing them, and then immersing in a 5 per cent. carbolic acid solution.

*Catgut.*—This is bought in the raw state from the dealer, and can be prepared by immersion in oil of juniper wood for twenty-four hours, then transferred to alcohol, 95 per cent., for preservation; or, it is first immersed in a watery bichloride solution for twenty minutes, then placed in alcohol, 95 per cent., for one hour. It is then laid in oil of juniper for forty-eight hours, and transferred back to alcohol for preservation. The first method has given good and safe results. The second has the advantage of combination with the bichloride, but it has a tendency to make the gut brittle. Either method will so prepare it that it will stand the action of the fluids a sufficient length of time to allow of permanent results.

The finest work, especially that on the intestine, can be done by No. 0, and if well prepared, I know by experience it will resist the action of the secretions of the peritoneum. No. 1 is the most common size, and more of this should be kept on hand than of the other. No. 4 will tie the most massive pedicle. The surgeon's knot should always be used in tying.

*Silk.*—Silk for ligatures and sutures is prepared by separating the strands and then laying it in boiling water for an hour. Some surgeons advise transferring it to bichloride solution, 1-3,000, for from three to five hours, then to be kept in alcohol. If thoroughly boiled it is rendered aseptic, and when transferred to alcohol is safe to use. The bichloride no doubt insures the asepticism by its presence. The size of silk is governed by the operation.

For abdominal surgery 1 to 4 twisted silk is the proper size, but to-day, in ordinary work, catgut has almost superseded the use of silk. Abdominal surgeons do not place confidence in catgut for the work on the female generative organs, but use aseptic silk, being safer in tying a firm knot and with no liability of too early absorption.

#### INSTRUMENTS.

The instruments should have smooth and polished surfaces; grooved and roughened handles are hard to clean. They should be well scrubbed to rid them of any dirt or blood.

For sterilizing the instruments, boiling is the best means possible. If convenient it should be done in a special sterilizer, if not, any tin vessel will serve the purpose. They should be boiled in a 1 per cent. solution of carbonate of soda. The soda is to prevent discoloration of the instruments, and does not dull the knife edge, which always occurs when plain water is used.

The instruments can be taken out, wiped on aseptic gauze, and used immediately; or, if they are to be used away from the hospital, after boiling, they can be dried by heat in the oven and then wrapped in aseptic gauze or towels.

Before using they must be placed in the pans and covered either with distilled water or carbolic acid 1 to 20, half an hour before the operation. When they come in contact with any septic matter they should either be discarded or dipped into boiling soda solution for a few seconds, which will sterilize them.

The proper instruments should be got ready for every case, having no more than necessary, as useless instruments interfere with expedition. These are to be placed in proper pans, and so arranged as to be readily reached by assistant or operator. In ope-

rations in which the technique is more or less definite the needles should be threaded and stuck in rolls of gauze, so that less time will be lost. This is especially advantageous in operations on the intestines, where time is so valuable.

#### CLEANSING OF PATIENT.

The patient, if time allows, is prepared for the operation twenty-four hours before. A hot bath is given, and then the region of the parts to be operated on is shaved, and for a considerable distance beyond is well and thoroughly scrubbed with potash soap, then dried by brisk rubbing with a coarse towel. The rubbing must be well done to remove the loose epidermis, and by this get rid of the germs.

Then the surface is washed with alcohol or ether, after which the parts are bathed with a 1-1,000 bichloride solution. Towels wrung out of the 1-1,000 sublimate are then wrapped around the part, and kept on until the operation. The surface is then washed by 1-1,000 sublimate solution, and the patient is ready for the operation, with a certainty that everything at the field of operation is aseptic.

#### PREPARATION OF PATIENT FOR OPERATION.

Tables required for the operation and for the instruments are placed in position, the one for the operation being in the most favorable light. The patient is then brought on to the table. It is necessary to so protect the wound from infection that if the hands or instruments come in contact with anything it is of an aseptic nature. The part is covered with bichloride towels, which are wrapped around and over surfaces in the neighborhood. For instance, it is an amputation of the lower third of the thigh. If it is a non-suppurative case, and time has allowed, the patient has been well bathed and scrubbed. When the patient is on the table the whole of the limb below the point of separation is wrapped in bichloride towels and fastened. The part above this is also wrapped in the same manner. The abdomen is covered over, including the arms, which are kept to the sides by this means. The other limb is also covered in its whole length in the same manner. The part to be operated on is kept wrapped up in bichloride towels until ready. Rubber cloths have been placed to keep the patient dry.

The case is then ready for operation. The towels are removed from the seat of operation, and the limb is washed again with sublimate solution. By these details, which occupy but little time, the patient is protected, beyond doubt, from infective contact. If failure in any sense follows, there is a positive fault somewhere.

An amputation through a septic point requires a preparatory treatment, for sometimes previous; as the cleansing out of sinuses, removal of necrosed tissue, and the placing of the parts in as aseptic a condition as possible. This may require some days to accomplish, then the case is ready, the final care in protecting being the same as in the former.

This method of protection is applicable in the same manner to all other parts. The object attempted is to keep hands or instruments from being contaminated.

#### THE OPERATOR.

There is no more particular part of the technique of aseptic surgery than cleanness of the operator.

After the patient has been prepared, and instruments sterilized, it is his duty to so clean his hands that they may not be the source of infection in the wound. The nails should be kept short. The hands should

be well scrubbed with a stiff brush and potash soap until every particle of dirt is removed, taking care to clean beneath the nails, for here it is that the most infection lies. Do not clean the nails after with any instrument, it only disturbs the epiderm, and probably loosens up some hidden danger. The hands and arms should then be washed in bichloride solution for at least two minutes. Some operators advise the placing of the hands in a solution of permanganate of potash, then into the bichloride. The utmost care should be taken not to touch anything that has not been rendered aseptic; but if it should happen the hands must be immediately sterilized. It is astonishing how this is overlooked. There is no doubt that many an operation has been defective through this means, and the reason sought elsewhere in vain. In all operations the shirt sleeves should be rolled up beneath the linen coat, if one is worn; over this a clean linen apron, covering the whole front, should be placed. The operator should be particular in watching his assistants to see that they are as careful in their toilet as he is; on such, apparently minor points, the success of the operation frequently depends. A properly trained nurse is a prize, and is invaluable in assisting, and when possible should never be dispensed with.

#### IRRIGATION.

The irrigator may be any vessel that is efficient. It is placed at such a height that the stream will have force enough to wash the surface of the wound, sinus or cavity, free of any discharge. The flow can be controlled by pressure on the tube. The irrigator should be used in preference to sponges. Its proper application will keep the surface perfectly clean and limit capillary hemorrhage.

#### APPLICATION OF LIGATURES.

To-day catgut is universally used. The vessels are simply tied and the ends cut short, yet not so close that the ends will untie when the ligature begins to expand. It is not wise to exert the amount of strength in tying an artery as is usually shown. It does not require very much force to rupture the internal coats of the artery. The rupturing of the internal coat is an open question, yet it is wise to secure the vessel firmly. Do not, when tying the ligature, take hold of the catgut at a distance from the vessel. This is apt to result in the breaking of the ligature and possible injury to the vessel at some other point. The thumbs ought to be placed back to back, then the tying can be done without jar or break. Torsion is not as safe, in any condition, as the ligature, and should never be used. When aseptic surgery was unknown it may have had advantages over the ligature in the non-suppuration of the vessel.

#### SUTURING.

Care in suturing cannot be too much impressed on the operator, for on this depends, to a great extent, the prevention of possible infection from the outside. Some authorities say if the wound surface is thoroughly aseptic, and close coaptation has been made of the skin surface, that it makes little difference what antiseptic is used on the surface, and this is why many operators have such wonderful results when antiseptics of low grade are used. This is instanced in removing the dressing after an operation, where the skin has been closely coaptated, we find the dressing absolutely free from any stain, the iodoform unchanged, which we know takes place as soon as the exudates come in contact with it, and the line of union shows no irritation, and when examined closely there is no



pointing tissue found standing up between the skin edges. There has been no opportunity for exudation; clean work, and neat union of superimposing layers have prevented by their contact any opportunity for this to occur.

Primary union with a linear cicatrix is the ideal healing of an aseptic wound. The sutures vary under modifying circumstances. In tissues of equal thickness the suture must be placed at an equal distance in each lip to bring the edges together; this is best done by compressing the edges of the incision between the thumb and index finger, so that both edges are on a line. A slight eversion of the edges when passing the sutures through will be more apt to bring the skin surfaces in contact, and prevent both eversion and inversion. Then when the suture is being tied the assistant must, if there should be any eversion, press the everted tissues into the incision with the scissors, which he has charge of, until the knot is just taut enough, when they should be removed. If there is no assistant the operator must mould the tissue into place with his fingers as he brings the loop tight; this is easily done. It is the assistant's place, when the incision is large, to hold the edges together while the sutures are being passed; he not only does this, but supports the tissues and prevents dragging. The sutures can be tied as they are entered, or all finished together. If many sutures are to be used, and it is not desirable to tie them as they are placed, as in abdominal work, each suture can be caught together, and held by a pair of hæmostats. This keeps them from being drawn out.

The first loop should be twisted around twice, as the surgeon's knot calls for; this prevents slipping. If there is any tendency of this loop to slip, it can be made to hold by "jamming" the first knot into the angle of the suture, next to the operator, by a slight jerk made on the distal end of the thread while the mesial end is held on the stretch.

If support is necessary where there has been loss of integument, or where there will be considerable strain, supporting or retentive sutures should be used. When this is necessary these sutures should be passed two or more, according to the size of the wound. They should be entered well back, and then the tissues pushed forward by the assistant as they are being tied. The close coaptating sutures are then passed in between them sufficient to bring the edges together. It must not be overlooked, that if too much tissue is lost, it is not wise to coaptate the surfaces by force. They should be brought together as close as it is safe, and then the balance allowed to heal by granulation. If too much tension is exerted serious results will be sure to occur by depriving the parts of sufficient blood.

The continuous suture is not used to the same extent as formerly. It has no advantage over the interrupted, and coaptation cannot be as carefully made. In extensive wounds the sutures will give closer coaptation if the first one is introduced in the middle.

After a large experience in intestinal surgery I have found that the interrupted suture can be as rapidly applied as the continuous, and gives better results. The continuous suture has been advised over the interrupted, on account of tension, the same has been said of the mattress suture. This is entirely wrong, there is no tension on the intestine at the point of operation, the injury, either by accident or design, always producing paralysis of the intestine at the place of injury; therefore, as gas and fecal mat-

ter cannot pass through the paralyzed portion, from loss of peristalsis, tension is not a factor.

Silk-worm gut is a valuable suture in every case where wire is used. It is smooth, does not kink, can be tied easily, or secured with shot, does not irritate, can remain indefinitely, as absorption is exceedingly slight, and is easily removed. For abdominal incisions no better suture can be used.

#### DRAINAGE.

The aim of the aseptic surgeon is to devise some antiseptic or means whereby drainage can be dispensed with; this will be the ideal aseptic wound; but as this has not been attained, this important factor in wound healing cannot be overlooked. It is as important as the primary cleansing. The abundant serous exudation, which takes place, as the result of the hyperemia due to the injury inflicted, bathes the parts, and if the deeper portion of the wound is not firmly coaptated in conjunction with the skin surface, then distention, with separation, must take place as a result of this retention. Not only is the tension an objectionable feature, but there are retained fluids that form a good pabulum for the development of micro-organisms.

The spontaneous escape of these fluids, as fast as they arise, can be accomplished by proper drainage.

The necessity for drainage can be lessened by the careful manipulation of the wound. Care in operating to injure the tissues as little as possible, perfect cleansing, complete hæmostasis, the expressing out of all fluids contained by gentle manipulation, perfect coaptation of the whole surface, firm, still, gentle compression (if this is properly applied it is a wonderful adjunct). Then proper dressings, and not too frequent change.

The materials and instruments for drainage are capillary and tubular.

Capillary drainage will not remove pus; but is useful to remove the primary secretion, which is serous in nature. They should be fine and not readily absorbed, or of such structure as are not influenced.

Catgut properly prepared makes a good drain, and has the advantage of being gradually absorbed, does not interfere with primary union, or necessitate the removal of the dressings.

The juniper gut makes a very reliable drain for ordinary wounds; but if there is any uncertainty chromicized gut can be used instead. This is prepared by immersion in a solution of:

Chromic acid.....	1 part.
Water.....	4,000 "
Carbolic acid.....	200 "

Enough catgut should be taken to equal in weight the carbolic acid; it should remain in this solution forty-eight hours, then be dried and placed in carbolic oil 1 to 5.

In making a drain, a sufficient number of strands are taken, according to the size of the wound, and placed in the bottom of the incision, brought out at the ends, and then tied in a knot to prevent being pulled out. If multiple points of drainage are thought advisable, the method suggested by Chiene can be used. "Take a skein of catgut containing, say, twenty threads, and tie it at its middle by a single catgut thread. One end of the thread is passed through a curved needle, and by means of this the center of the skein is stitched to the deepest part of the wound. The skein is now broken up into bundles of five threads each, one bundle comes out at each angle of the incision, and the other bundles at intervals between the stitches."

If there is a possibility that the drainage may be persistent for some days, it would not be wise to depend on the gut.

Horse hair is an effective drain, easily obtained, prepared, and non-irritant. It should be first washed in an alkaline solution, then kept in a watery 5 per cent. solution of carbolic acid. It is to be laid in bundles at the place desired. A good way of using it is to fold a strand on itself and fasten the hairs together by winding a single hair around them in a spiral manner. The convex looped end is introduced into the wound. As it becomes necessary to lessen the size of the drain, successive hairs are withdrawn.

As pus cannot be removed by capillary drains, it is necessary that a more effective means be used. Chassaigne introduced the rubber tube for this purpose. It is flexible, and comparatively unirritating. The size varies as the wound, from  $\frac{1}{8}$  of an inch upward. Black rubber is objected to on account of the sulphur contained in it being liable to form sulphuretted hydrogen; red tubing has been advised in its place. The tubes are made any length, and fenestrated for the passage of fluid. These openings can be made by bending the tube sharply on itself and cutting the angle. As the tubes act as foreign bodies, they should be removed as soon as the secretions change in character and quantity, or the cavity becomes obliterated.

For draining large and deep-seated abscesses, an efficient method is suggested by Gerster: "A number of fenestra are cut into the sides of a large-calibered tube, which is placed well within the cavity. Another, smaller-sized tube, of the same length, is provided with a couple of fenestra near its mesial end, and is inserted into the abscess alongside of the larger tube. A stream of lotion injected into the smaller tube will enter the bottom of the abscess, will wash out its recesses, and will carry away secretions and *débris* through the many fenestra of the larger tube."

Absorbable tubes have been used. They are made out of sound ox or horse bone, turned in a lathe, bored, and then decalcified in a mixture of 1 part of hydrochloric acid to 10 parts of water. Ten hours will decalcify them. They are well washed, to clear them of acid, and then placed in a 5 per cent. carbolic acid solution. They soften in six to seven days, and fill with lymph. The femora of chickens have been used in place of the expensive manufactured drains.

These drains are apt to collapse when softened, and defeat the object intended.

Glass drains have been used in general surgery, but are now mostly confined to abdominal work. The large tube formerly used in this special branch of surgery has given place to smaller sizes, and instead of being fenestrated with large holes, they are perforated with fine openings; this prevents the entrance of omentum or bowel. This tube must be frequently emptied—at least every two hours—to prevent secondary trouble. The drainage of the abdomen has been an important advance in technique.

These various means, to be effective, must be well applied; if not, their object is defeated, and the consequences further increased by their presence.

The drainage tube should not be used in the following cases:

In the open wound treatment.

In cavity wounds which can be thoroughly tamponed, and thus converted—practically converted—into an open wound.

In case of flat wounds, where the dressing can soak up the secretions and carry them off.

In cases where the intention is to bring the edges together only after the lapse of one to three days.

#### APPLICATION OF DRESSING.

Supposing that the operation is finished, we will proceed to dress our wound. If the wound is only slight, especially if it is on the face, no better application can be made than the iodoform collodion, 1 to 10. This is allowed to fall off itself, by which time the wound is completely healed.

The dressings are modified by the character of the operation; if, for instance, there is loss of the deeper tissues, as in an amputation of the breasts, then the dressings must be so applied that they not only protect the wound from infection, but give support, bringing the parts into coaptation, and preventing exudation. After the drainage-tube or catgut drains are put in position, being so arranged as to make the exit of fluid easy, the sutures are applied—retention sutures, if necessary.

The drainage-tube, after thorough drainage through it, is then cut short, and secured from being dragged out by passing safety pins through the ends. The parts are then gently compressed, to force out all liquids. The surrounding surface is well cleansed and dried; all wet towels are removed and clean ones substituted, to keep the dressings from being soiled. Iodoform, or any of the other antiseptics, is dusted over the incision. The protective is applied if the operator desires, but this is not required if a perfectly dry dressing is used, and its results expected. The advantage from ease of removal of the dressing where the protective is used, is counterbalanced by the dessicated condition of the wound in the other. Iodoform gauze is used directly on the surface by some operators, but is not a necessity where the iodoform has been applied. It is applied in flat layers; or crumpled up, which is decidedly the best, by exposing a greater absorbing and antisepticizing surface to the wound. If iodoform gauze is not desirable, the bichloride can be applied in the same manner. When the former is used, we then place over this a mass of crumpled bichloride gauze; but before applying it over the iodoform gauze, it is best to take pads of some thickness and so place them around the incision that they will make compression on the skin flaps and bring them in apposition with the underlying surface; this not only prevents exudation, but expedites union. Over the crumpled gauze is placed sterilized absorbent cotton. Of course, special care should be taken that masses of the crumpled dressing surround the drainage-tubes.

Then bichloride bandages—or muslin, if desired—are applied, to maintain dressings and give support. The arm is then placed by the side and secured, or placed in a sling.

This is a typical dressing of a grave operation by the dry method. The moist dressing has been described. It is the application of moist instead of dry dressings, kept moist by impervious covering.

When shall we remove the dressing? This is governed by the secretions, fever and pain. The exudation may be so great, soiling the dressing to such an extent that they may have to be removed inside of twenty-four hours, but if this does not occur, and there is no fever or pain present, the dressing should not be removed for eight or ten days. The presence of the drainage tube necessitates removal at an earlier period.

The removal of the dressings should be done with as much care as the placing in position. The new dressings should be got ready, clean and at hand, the



irrigator filled with warm bichloride solution, scissors, forceps, grooved director, drainage tubes, and pads of cotton or sponges. This is to prevent contamination, loss of time and distress to patient. The bandages should be cut through gently, so that no jar will occur. The superficial dressings removed, the irrigator is used to soften the deeper dressings, so that they can be removed without injury to the part. All secretions and soiling is carefully removed, the surface irrigated, and drainage tubes removed and changed if necessary.

The surgeon's hands are again cleansed before he examines the wound. If the edges are not irritated, inflamed and reddened, but look pale, with no cedema, then it should be redressed in the same manner as at first. This, probably, will be the last dressing.

The dressing of an open wound is of a different nature. We will take a similar case, but when by certain reasons there is loss of skin sufficient to prevent bringing the edges in contact in its entirety, the angles of the wound are brought together as far along its length as can be done without too much tension. We have a surface of greater or less extent uncovered. This has to heal by granulation. Iodoform is well dusted over the surface. The drains have been applied to the deeper portions of the wound. Iodoform or bichloride gauze is packed into the open part of the wound, being careful that every portion of the surface is in contact with the iodoform, then over this packing loose gauze is thickly placed, then sterilized cotton on top. Compression is made over that part of the wound which is covered with flaps.

Some operators advise placing over the gauze an impervious covering. This is advantageous. The dressing is of a moist nature and facilitates absorption.

When tissues of low vitality, such as bone, fasciæ and tendon, are exposed to evaporation, necrosis is very apt to occur. This can be prevented by placing directly over the wound a piece of protective dipped into a carbolic acid solution, and on this an ample bichloride dressing.

This is the method suggested by Schede to utilize blood clots to fill up surfaces that cannot be covered. This is presupposing the wound to be aseptic. It protects the surface beneath it. This is possible, providing the blood is kept aseptic and prevented from becoming exsiccated. If this is perfect, granulation will gradually take the place of the clot and cicatrization is complete.

Operations involving the osseous tissues, as amputations and exsections, require the dressings to remain as long as possible. In resections of the knee, where osseous union is looked for, the dressings are not changed for thirty to forty days.

Another wound that requires the moist dressing is the septic wound. This is an open wound. Its character varies according to tissue. There is gaping, pus is present, the lips are swollen and covered with a coating which indicates superficial or deep necrosis. The wound is thoroughly irrigated, all sinuses are incised and cleaned, then the surface is dusted with iodoform and packed with bichloride gauze, over this is applied a moist dressing, then an impervious covering. This will drain it completely; frequent dressings are required, lessened as the discharges decrease. This dressing lessens the fever and pain.

One of the most common injuries that come into the average practice, is that of contused or lacerated wounds. These are at times very severe in extent and amount of destruction of the tissues, both soft and osseous. The prime object in the treatment of these cases is the saving of the part. This is often sur-

prising, and it has been repeatedly proven to me that it is unwise to remove any tissue as long as it has the semblance of vitality. The end attained is twofold, not only do you win the gratitude and confidence of your patient by suggesting a conservative plan, but you have the intense satisfaction in knowing that you save to him a member, or part of the same. A careful examination should be made of the injury, under ether if necessary; every particle of dirt must be removed. Use bichloride solution, either from an irrigator or a large syringe; do not use sponges to irritate the already injured tissue. Save every particle of soft tissue that shows any vitality. If the osseous tissues are fractured, do not remove any; endeavor to replace them, bringing to them every shred of periosteum; having got every part clean, put in your drains, if required, catgut preferably, then bring into apposition all shreds of tissue, tendon, muscle and skin, with catgut sutures. If blood clots form after cleansing they must not be removed; dust iodoform freely over the surface, then apply your crumpled gauze. I have used both the moist and dry, and give the preference to the latter procedure. The dressings are changed according to the secretions and pain.

It is understood if an injury is of such a character that amputation is a question, it will have to lie on the surgeon's judgment, as no iron-clad rules can be given, yet the conservative treatment is all-wise. This conservative method is applicable principally to hands and feet.

## The Polyclinic.

### JEFFERSON MEDICAL COLLEGE HOSPITAL.

Reported by J. T. TAYLOR, M.D.

PROF. BRINTON says: The bladder can be washed out without the use of a catheter, by attaching a long tube to the vessel containing the solution, inserting the end of the tube in the urethra, then elevating the vessel several feet above the patient. The fluid will run, by gravitation, into the bladder, then by lowering the vessel and inverting it the fluid can be syphoned out.

Prof. Parvin, in treating parenchymatous metritis, directs the use of ergot, nux vomica, hot or cold water injection, absolute rest, tampons of iodine and glycerine, or injections of creolin; in injecting creolin, always begin with a half per cent. solution, especially when injecting it in the bladder.

For seborrhœa, Dr. Cantrell recommends tinctura saponis viridis ℥j—℥j; make a lather or shampoo of this and rub thoroughly into the scalp, then wash and apply:

R.—Acid. carbolicæ ..... gr. xx.  
Acid. salicylicæ ..... gr. xxx.  
Ol. olivæ ..... ℥j.

Dr. Cohen says that after the operation for the removal of nasal polypi there is no better application than:

R.—Ext. hamamelis ..... 3j.  
Aque destillatæ ..... 3iij.

In his lecture to the class on sprains, Prof. Brinton said the indications in the treatment were to:

1. Control the inflammation.
2. Get rid of the effusion.
3. Recover motion.

Apply dressings of lead-water and laudanum or evaporating lotions. Immerse the injured part in hot water, as hot as the patient can bear. An important point in the treatment of sprains is pressure either made by applying a bandage, or a permanent dressing, and in case of irritability of a joint from a sprain, a silicate of sodium dressing makes an excellent application.

Dr. Wirgman, in prescribing for a patient with rheumatoid arthritis, after ordering salicylate of lithium, gr. x. three times a day, gave the following ointment:

R.—Ung. iodi comp..... f3j.  
Ext. belladonnæ aq..... f3ij.  
Ext. opii aq..... ℥j.  
M. ft. unguentum.  
Sig.—Apply locally.

Dr. Rex, in a clinical lecture, in speaking of the antipyretic uses of antipyrin and quinine, said that antipyrin would reduce the temperature but would not keep it reduced; while quinine would not reduce the temperature, but would hold it down; so that he gives antipyrin to bring down the temperature, and follows this with the same quantity of quinine to keep it down.

Prof. Parvin, in speaking on the use of the forceps, said the forceps is indicated in uterine hemorrhage; in rupture of the uterus; in wasting diseases; in valvular disease of the heart; when the child's life is in danger, or the life of the mother, or both; as a rule the os should be dilated; the membranes must have ruptured; the child must be alive; the head must be in the superior strait; apply the forceps blades to the sides of the child's head. Before applying the forceps they should be dipped in hot water, and then rubbed with creolin.

Prof. Keen presented at the clinic a woman fifty years of age suffering from scirrhus of the breast; the tumor was hard and adherent; the pain was slight at first, becoming severe and lancinating; after the pain ceased it was followed by a burning sensation. The growth was small, but there was great glandular enlargement. The whole breast was removed; the axillary space opened up and all the glands were taken out; likewise all the surrounding adipose tissue.

Prof. Bartholow in treating a patient with paralysis agitans, prescribed chloride of barium gr. ss in pill, three times a day.

Dr. Rex, for a case of coryza in a child, advised the following plan of treatment: Place the patient in a well ventilated room, with a temperature of about 70° F. Have the patient wear warm clothing. Rub the chest with some mild rubefacient. If feverish, a foot bath or some fever mixture; later, some expectorant mixture in which there is carbonate of ammonia or syrup of senega. He gave the following prescription:

R.—Tincturæ scillæ..... ℥j.  
Vini ipecac..... ℥j.  
Syr. tolu..... ℥xx.  
Aque gaultheriæ..... f3j.  
M.—S. Every two hours.

Every hour or two the patient should take some albumin water, which can be made by taking a pint of luke-warm water and dissolving in it the white of one egg.

Prof. Brinton gave the class the following as a good prescription to be given to drunkards after a debauch:

R.—Spt. ammoniæ aromat..... f3ij.  
Tinct. capsici..... f3j.  
Spt. lavandulæ comp..... f3ss.  
Liq. soda-mint..... f3ij.  
Tr. opii deodorat..... f3ss-j.  
M.—S. f3ij every four hours.

Prof. Brinton gave the class the following, to be remembered in making a diagnosis between concussion and compression of the brain:

CONCUSSION.	COMPRESSION.
1. Incomplete insensibility.	1. Complete insensibility.
2. Partial muscular action.	2. Paralysis.
3. Special senses act partially.	3. Do not.
4. Patient can answer questions if roused.	4. Can not.
5. Pulse quick; feeble; often intermittent.	5. Slow and laboring.
6. Skin cold; temperature falls to 94° or 95°.	6. Hot and perspiring; rises to 102°-3° or 4°.
7. Respiration feeble; quiet.	7. Labored; stertorous; in whiffs.
8. Nausea and vomiting.	8. None.
9. Pupils irregularly contracted.	9. Irregularly dilated.
10. Eye-lids somewhat open.	10. Irregularly closed.
11. Urine voided, feces retained.	11. Retention of urine; involuntary escape of feces.

Dr. Longstreth, in treating tonsillitis, advises the use of counter-irritation, quinine, muriate of ammonia, with the addition of tinctura ferri chloridi; the parts may be painted over with the perchloride of iron, and internally:

R.—Tinct. iodi..... gtt. j.  
Potassii iodidi..... q. s.  
Ammonii chloridi..... gr. v.  
Mist. glycyrrh. comp..... f3ss.  
Syr. simplicis..... f3j.  
M.—S. Every three or four hours.

Prof. Keen advises the use of mercury immediately on making a diagnosis of syphilis. He prefers to give the protiodide of mercury, gr. ¼, three times a day, guarded with opium.

Prof. Keen recently showed the class a case of meningocele. The patient was a child three years old. The tumor was found projecting from the posterior fontanelle; it was three inches long by about one and a quarter inches at its base. Prof. Keen decided to remove it, which was done by very carefully dissecting it out. The pedicle by which it was attached was sutured and the mass severed from it. The cranial opening, which was quite large, was partially closed with decalcified ox-bone. In this case there was no drainage employed.

Dr. Rex, in treating chorea, directs that rest in bed be imperative for not less than two weeks; inquire into the cause and endeavor to remove it; the patient should have a luke-warm bath every morning; the diet should consist principally of milk; chloral to quiet the nervous irritability; the best remedy is arsenic, beginning with small doses of Fowler's solution, later giving the lactate or the phosphate of iron.

Prof. Keen thinks that where a diagnosis is obscure an exploratory operation should be done, for there is very little risk under the usual antiseptic precautions, and it often assists wonderfully in establishing a diagnosis.

For a severe case of burn involving both hands. I saw the case a short time after the accident. Immediately after the burn lard was applied. For a dressing I used white lead made thin with linseed oil, and painted this thickly all over the burned surface, over this was placed a thick layer of cotton and bandages applied. The dressings were frequently changed, each time painting the surface over with white lead. The result was the patient recovered in one week.

—J. T. T.



# The Times and Register

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## THE REJECTED CANDIDATE.

THERE is one thing that the medical student cannot be taught; and that is, that he may not be fit to engage in the practice of medicine. No matter how complete may be the demonstration of his incapacity, he stands ready to take upon himself the grave responsibilities of the physician, without a thought of commiseration for the unfortunates who may place their lives at his mercy. There is always some plausible excuse for failure to pass the examiners. They have asked "catch questions," whatever they may be; have taken an unaccountable prejudice against the candidate, or haven't given him a fair chance, etc., etc. It never seems to occur to the youth that the examiners may be right; and that ignorance and immaturity are better judged by them than by the interested person.

Out of the thousands of young physicians who begin their professional careers this spring, a few will become eminent; many will obtain a living from practice, and the majority will fail, drifting into quackery, perhaps into crime, or forced into non-professional occupations. It seems reasonable to infer that those whose business it is to teach medical students should have the best judgment as to the prospects of success in the case of each. And nobody is as much interested in this as the candidate himself. If he has studied three years and has not imbibed a fair amount of knowledge—if he has not exhibited any capacity for this particular art—he ought to know it, and save himself from further waste of time and money. But he will not believe his advisers. He will hunt about until he has found a faculty weak enough to grant him a degree. He will spend his best years in a hopeless struggle to win against the competition of men really qualified; and, finally, when he has raised himself from the grade of a bad doctor to that of a street car conductor, he may possibly remember the advice he rejected. But the chances are that he will not.

## THERAPEUTIC PRINCIPLES.

IN the management of a disease due to a micro-organism, such as tuberculosis, there are two principles, and only two, upon which treatment can be founded. One is to weaken or kill the micro-organism; the other is to increase the resisting power of the tissues of the body. The use of creosote and iodoform come under the first head; while alcohol, cod-liver oil, tannic acid, forced feeding, climatic treatment, etc., come under the second. The lymph of Koch is only by a forced interpretation of words included in the former class, as this substance does not in any way injuriously affect the tubercle bacillus, but kills the tissues surrounding it. It simply performs an amputation. It sets the bacillus free; and whether this organism remains in the body or gets out is a matter over which the paratoloid exercises no sort of control. The chances are much in favor of the bacillus remaining in the body and renewing the disease. In that case nothing whatever has been gained by the use of paratoloid; but, on the contrary, there has been an instant destruction of tissues that might otherwise have occupied the invaders for some time. It is then a surrender to the enemy of every fort that he has invested. To supplement the use of paratoloid we must employ an efficient germicide to destroy the bacilli, uncovered by the destruction of their investments; and we must endeavor to fortify the body against further onslaughts. But this is just what we must do in cases treated without the paratoloid; and the results are quite as good. The conviction grows stronger that the use of this agent has been a mistake. Its very remarkable action was discovered, and straightway the wholly unwarranted inference sprang up, that because paratoloid destroys the environment of the tubercle bacilli, therefore its use would prove curative in tuberculosis. And, of course, like good sheep, we must follow the bell-wether.

## PROSTITUTION IN JAPAN.

The proper way to deal with the vice of prostitution is as much a problem now as ever before. It seems to be the one sore which the skill of civilization is unable to cure. Those who believe that every occupation which the public finds difficult or impossible to direct or suppress, could successfully be taken in hand by the Government, would probably be surprised on reading the paper referred to below. Japan has tried Government supervision in the matter of prostitution since 1876, and now we read in the *Sei-i-Kwei* medical journal a long and cogent memorial to the Government, praying for the suppression of licensed prostitution. The act was passed originally to "protect" British sailors coming ashore, and included but a few cities, but finally the Government established the system in nearly all portions of the empire.

The memorialists contend that the system is not only morally wrong, but also practically a failure. It truly says that in regulating vice by license, the Government "thus gives sanction to sin, the moral

sense of the country is weakened and perverted, and fruit is borne to the nation's weakness and dishonor; and this result is already witnessed on every hand. Honored by State protection, venal love is seen in literature, in society, and even in public entertainments, and it maintains itself, made respectable by official sanction and authority. It corrupts the family life, blurs the distinction between good and evil, and, permitted, as it is, to flaunt itself in public, attracts, by its dazzling luxury, the gaze and admiration of thoughtless people. Witness the general and marked attention a prostitute receives in the street to-day when, to represent her guild, she dresses in silks and brocades and, as at the Yoshiwara or at Kyoto, parades in public."

In France, where the system of licensing prostitutes under official medical examination first began, and is still kept up, vice and disease have been found to increase disproportionately to the population. Indeed, Lecour, chief of police of Paris, after years of effort, aided by almost unlimited money, declared: "The evil must be overcome by moral, not by legislative, means." Ample statistics are cited by the petitioners to prove: That the number of unlicensed prostitutes has not been lessened; that the system corrupts morals and encourages crime, citing the fact that the ratio of criminals in the unlicensed districts is greater than that in the licensed. The system, too, is radically unjust, subjecting women to the degradation of periodical examinations, whilst men are allowed freedom to scatter disease right and left. On account of the supposed safety in such intercourse many men are led to engage in venereal excesses who would otherwise be virtuous through mere fear; but it is found that this trust is misplaced, and that the examinations are inadequate, for disease is constantly breaking out among the licensed class from twenty-four to forty-eight hours after examination. From the fact, too, that a prostitute may be the means of transmitting venereal disease without having it herself (mediate contagion), the surety afforded those who visit the licensed frail ones is by no means trustworthy.

They ask, therefore, that the act legalizing prostitution be abolished; maintaining that the only way to cope successfully with the evil is not by legal but moral measures. Educate the people, they say, to a knowledge of the laws of health. Acquaint them with the dangers inseparable to prostitution, and instead of practically encouraging, array the State against prostitution as against cholera, or any other contagious pest.

—E. B. S.

DR. L. S. McMURTRY, of Louisville, Ky., President of the Southern Surgical and Gynecological Association, delivered two lectures before the Alumni Association of the College of Physicians and Surgeons, of Baltimore, at the College Building, cor. Calvert and Saratoga streets, on Saturday evening, April 11, at 8 o'clock, and on Monday afternoon, April 13, at 5 o'clock. Subject: The Pathology, Diagnosis, and Treatment of Ectopic Gestation.

## The Medical Digest.

### ANALYSIS OF THE FREQUENCY OF SYMPTOMS OCCURRING IN FIFTY CASES OF GERMAN MEASLES.

Age.	Invasion.	Appearance of rash in.	Order of first appearance of rash.	Duration of rash.	Duration of sore throat.	
No. of Cases.						
Up to 12 years.						
41						
12 to 20 "						
6						
3						
27	NO invasion.					
23	Malaise.					
20	Nausea.					
3	Vomiting.					
5	Catarrh.					
13	Sore throat.					
18	Enlarged neck glands.					
1	Rigors.					
15		12 to 24 hours.				
5		24 to 36 "				
3		36 to 72 "				
1		After 3 days.				
32	Head.					
10	Body.					
1	Limbs.					
7	Simultaneously over all parts.					
23		24 hours.				
17		36 "				
9		48 "				
1		4 days.				
		24 to 48 hours.				
3		48 to 72 "				
4		72 to 120 "				
18	Enlargement of neck glands subsequent to appearance of rash.					
38	Intense and continuous attack of measles.					

This epidemic was evidently of mild type. The throat symptoms were mild in all cases. The rash appeared to be thicker and darker in proportion to age. In no case did the rash assume definitely the crescentic form seen in measles. In young fair patients, having a mild attack, the rash appeared particularly like that of scarlatina at its commencement, and was in some cases accompanied by a temperature of 103° F. One case ushered in by rigors and other severe symptoms, in which the rash did not appear for three days, remained four days and did not assume a crescentic form, may have been measles, but occurred in a house with other cases of rotheln. Enlargement of the neck glands will be seen to be a valuable diagnostic point.—Digby, *Brit. Med. Jour.*

TREATMENT OF LEAD POISONING.—To the treatment of lead poisoning I have little to add. Preventive measures are provided at all the lead factories, but the workers are frequently careless in regard to them. From the fact that during proteid digestion in the stomach less lead is dissolved, no man or woman should be allowed to engage in any work where lead is handled without first having had a good meal. I shall not deal with the measures that ought to be adopted to correct lead contaminated waters, or as to how the solvent influence of water upon lead may be avoided. To the treatment of lead colic I have but little to add—opiates and belladonna, castor oil and sulphate of magnesia, enemata, external applications and warmth are called for. Paralytic conditions improve but slowly under electrical treatment, sometimes they disappear without ever having had any electrical application at all, iodide of potassium, giving, on the whole, the best general results. If the patients are anæmic, iodide of iron will be found useful. Lithia has little influence upon the pains either in joints or muscles, but it steadily increases the amount of urine. For the attacks of acute lead encephalopathy nothing gives such good results, in my opinion, as inhalation of nitrite of amyl, the slow pulse under its influence becomes quickened, the arterial tension is reduced, and convulsions are undoubtedly warded off. In other cases, particularly where there is complete suppression of urine in addition to the convulsions, pilocarpin has been followed by most successful results.

—Oliver, *Brit. Med. Jour.*



**THE PYREXIA OF PHTHISIS.**—A natural question arises here: Is it advisable to reduce the pyrexia of phthisis at all? We do not thereby stop the tuberculous process; and as regards the wasting, I have shown elsewhere that pyrexia in phthisis is compatible with gain of weight, provided the diet be of a sufficiently abundant and nutritive character. In most cases the reduction of temperature is attended with a certain degree of comfort to the patient. But even to this statement there are exceptions, for occasionally patients, when the pyrexia is reduced by antifebrin or antipyrin, experience such uncomfortable sensations—chiefly of oppression—that they prefer the high fever to the effect of the antipyretic.

Two agencies which sometimes prove powerful antipyretics must be mentioned. One is confinement to bed. This I have seen by itself reduce temperature to the extent of  $2^{\circ}$  or  $3^{\circ}$  F. The other is sleep, which will reduce temperature  $2^{\circ}$  and more at a time without any medicines.

My conclusions as to the treatment of pyrexia in phthisis are:

1. The pyrexia due to tuberculization is best dealt with by derivative measures, such as counter-irritation, salines promoting secretion from other organs, and assisting expectoration.

2. That in the treatment of the pyrexia accompanying softening and excavation, measures which hasten these processes are found to be most successful, especially if combined with antiperiodics, such as quinine, salicin, salicylate of sodium, to moderate the fever.

3. That the use of medicines solely directed to lowering the temperature of the body without promoting increase in the natural secretions is generally inadvisable.

4. That our object in the treatment of phthisical pyrexia should be, not the reduction at all hazards of the temperature, but its lowering to the limits compatible with the comfort and well-being of the patients, and for this end that much may be done, in addition to the discriminating use of medicines, by the simple means of frequent food combined with stimulants and rest in bed.—Williams, *Brit. Med. Jour.*

**Ptomaines.**—No one can doubt the importance of the progress which has been made in the comparatively new science of bacteriology, and only the few will venture to question the value of the light which it has thrown upon the nature and treatment of disease. It is, however, becoming more generally recognized that the bacteria *per se* are only of indirect significance in considering the causation of disease; while the most direct factors are the alkaloidal bases which they produce in breaking up the complex molecules of albuminous and similar groups of bodies.

The earlier discovered nitrogenous compounds of this kind were named *ptomaines*, because they were obtained from cadaveric tissues, and it is to L. Brieger especially that we are indebted for the most exhaustive work upon these alkaloids of putrefaction, and upon those which the living cell secretes in the normal state. Their physiological action was studied by Armand Gautier, who found that some of them are exceedingly poisonous, being in this respect comparable to the venom of serpents; while others that are not directly so are capable of setting up morbid processes such as suppuration.

Almost all the ptomaines and leucomaines are diamines, and many of them, such as *cadaverine*, *saprine*, *putrescine* and *neuridine* are isomeric, but distinct in chemical and physiological properties.

*Cadaverine*, which is, according to Ladenburg, *penta-methylendiamine*,  $\text{NH}_2(\text{CH}_2)_5\text{NH}_2$ , was originally isolated as a syrupy strongly alkaline liquid, with an odor like coniine, from human cadavers; it has been also obtained from putrid horse-flesh, mussels, and fish; while it seems to be a constant constituent of pure cultures of various microbes, including the bacilli of cholera and of cystinuria.

Prof. Kobert has recently made an exhaustive experimental investigation of the physiological action of cadaverine hydrochloride, which led him to the conclusion that the salt is much less active than the base, and that therefore, the risk of poisoning by cadaverine in cases of cholera, etc., may be minimized if the base can be converted into a neutral salt. On these grounds we can understand why the use of acidulated drinks has been found beneficial in the treatment of such diseases. Probably the enteroclysmata of tannin, recommended by Cantani, also owe any good effected to the formation of tannates with the bases present. Prof. Kobert also recommends the treatment of accumulations of pus by the injection of a few drops of a weak solution of some organic acid.

—*Provincial Med. Jour.*

## Medical News and Miscellany.

It is proposed in France to dispose of the dead by electroplating the body, and preserving it thus indefinitely.

*THE New Orleans Medical and Surgical Journal* pitches into Dr. Joseph Jones for not freely sharing his supply of tuberculin.

**WEEKLY Report of Interments in Philadelphia, from April 4 to April 11, 1891:**

CAUSES OF DEATH.	Adults.	Minors.	CAUSES OF DEATH.	Adults.	Minors.
Abscess of brain.....	1	2	Hemorrhage from umbilicus.....		1
" " lung.....	2		Inanition.....		6
Alcoholism.....	1		Influenza.....	10	4
Apoplexy.....	17		Inflammation bladder.....	3	
Aneurism of the aorta.....	1		" " brain.....	4	10
Bright's disease.....	8		" " bronchi.....	5	6
Burns and scalds.....	2	5	" " kidneys.....	2	
Cancer.....	11		" " larynx.....		1
Casualties.....	3	1	" " liver.....	3	
Cerebro-spinal meningitis.....	1		" " lungs.....	35	15
Congestion of the brain.....	1	6	" " peritoneum.....	3	1
" " lungs.....	1	1	" " pleura.....		1
" " liver.....	1	1	" " a. & bowels.....	2	9
Congestive chill.....	1		" " veins, prostate gland.....	1	
Cholera infantum.....		3	Jaundice.....		1
Cirrhosis of the liver.....	3		Leucocythemia.....		1
Consumption of the lungs.....	39		Malformation.....		1
Convulsions.....	11	10	Marasmus.....		12
Croup.....	7		Obstruction of the bowels.....		1
Cyanosis.....	3		Old age.....	11	
Debility.....	2		Paralysis.....	10	
Diabetes.....	2		Pyemia.....		1
Diarrhoea.....	1	2	Rheumatism.....	4	
Diphtheria.....	1	7	Rupture of the uterus.....	1	
Disease of the heart.....	30	3	Scrofula.....		1
" " liver.....	1		Septicæmia.....	2	
" " kidneys.....	1		Sore mouth.....		1
Drowned.....	1		Softening of the brain.....	2	
Dropsy, abdominal.....	1		Suffocation.....		1
Dropsy of the brain.....	1	2	Syphilis.....		1
" " chest.....	1		Tabs mesenterica.....		1
Effusion of the brain.....	1		Teething.....		2
Emphysema.....	2		Tetanus.....		1
Epilepsy.....	1		Trismus nascentium.....		1
Erysipelas.....	1	1	Tumor of the brain.....		1
Fatty degeneration of the heart.....	3		Tumor, abdominal.....	2	
Fever, malarial.....	1		Tumor of the thigh.....	1	
" " puerperal.....	1		Uremia.....	2	2
" " remittent.....	1		Whooping cough.....		4
" " scarlet.....	8		Wounds, gun-shot.....		1
" " typhoid.....	10	10	Total.....	257	178
Gout.....	1				
Gangrene of the cæcum.....	1				
" " foot.....	2				

THE NEW PHILADELPHIA is the title of a deeply interesting article which will appear in the *May Cosmopolitan*, and is from the pen of Mr. Henry C. Walsh.

KING'S JOURNAL DIRECTORY AND BUYER'S GUIDE, 1891. For the convenience of publishers, advertisers, manufacturers, etc., etc. Compiled and edited by Ferdinand King, M.D., P. O. Box 587, New York.

J. B. LIPPINCOTT COMPANY will, beginning with April, issue quarterly thereafter a work entitled *International Clinics*. This work will comprise the best and most practical clinical lectures on medicine, surgery, pediatrics, gynecology, dermatology, laryngology, ophthalmology, and otology delivered in the leading medical colleges of this country, Great Britain, and Canada. These lectures have been reported by competent medical stenographers, and thoroughly revised by the professors and lecturers themselves. The object of the work is to furnish the busy practitioner and medical student with the best and most practical clinical instruction in concise form. Each volume will consist of over three hundred and fifty octavo pages, illustrated with photographic reproductions of important cases.

At a meeting of the medical staff of the Presbyterian Hospital, held April 6, 1891, the following resolutions were offered, and unanimously accepted:

Inasmuch as it has pleased our Heavenly Father to remove from our midst our personal friend and late colleague, Dr. Thomas B. Reed, it becomes us, his fellow associates in the Presbyterian Hospital, to take some action in recognition of his former position and his valued personal relations with each one of us, as well as his interested and efficient services to the Institution he so loved and served. Therefore be it

*Resolved*, That in his death this board has lost one of its most efficient advisers. Endowed with a strong personality,

conscientious in the performance of the simplest duty, painstaking, devotedly interested in behalf of any patient submitted to his care, thoroughly equipped by a long experience in the management of hospitals in the army, he brought to bear upon all his professional and hospital duties such qualities as are rarely associated in a single individual.

*Resolved*, That we tender to his family an expression of our heartfelt sympathy in this, their hour of bereavement and trial.

Upon motion, it was decided to enter these resolutions upon the minutes of the meeting, to transmit a copy to the family of Dr. Reed and to the Trustees of the Presbyterian Hospital, and to publish them in the Philadelphia medical papers.

## Army, Navy & Marine Hospital Service.

*Official List of Changes of Stations and Duties of Medical Officers of the U. S. Marine Hospital Service for the two weeks ending April 4, 1891.*

WYMAN, WALTER, Surgeon. To inspect Delaware Breakwater Quarantine Station. March 27, 1891.

PURVIANCE, GEORGE, Surgeon. Detailed as Chairman, Board of Examiners. April 3, 1891.

SAWTELLE, H. W., Surgeon. To proceed to Rockland, Me., on special duty. March 25, 1891.

GASSAWAY, J. M., Surgeon. Granted leave of absence for five days. April 2, 1891.

GODFREY, JOHN, Surgeon. Detailed as member, Board of Examiners. April 3, 1891.

IRWIN, FAIRFAX, Surgeon. Detailed as recorder, Board of Examiners. April 3, 1891.

PECKHAM, C. T., Passed Assistant-Surgeon. Granted leave of absence for ten days. March 26, 1891.

WASDIN, EUGENE, Passed Assistant-Surgeon. Granted leave of absence for thirty days. March 27, 1891.

STIMPSON, W. G., Assistant-Surgeon. To proceed to Charleston, S. C., for temporary duty. March 26, 1891.

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## DISEASES OF THE URIC ACID DIATHESIS.

# LAMBERT'S LITHIATED HYDRANGEA.

**FORMULA.**—Each fluid drachm of "Lithiated Hydrangea" represents thirty grains of FRESH HYDRANGEA and three grains of chemically pure Benzo-Salicylate of Lithia. Prepared by our improved process of osmosis, it is invariably of definite and uniform therapeutic strength, and hence can be depended upon in clinical practice.

**DOSE.**—One or two teaspoonfuls four times a day (preferably between meals).

**THE** solution and elimination of an excess of uric acid and urates is, according to many authorities, best attained by intelligent combination of certain forms of Lithia and a Kidney Alternative.

The ascertained value of Hydrangea in Calculous Complaints and Abnormal Conditions of the Kidneys, through the earlier reports of Drs. Atlee, Horsley, Monkur, Butler and others, and the well-known utility of Lithia in the diseases of the Uric Acid Diathesis, at once justified the therapeutic claims for Lambert's Lithiated Hydrangea when first announced to the Medical Profession, whilst subsequent use and close clinical observation have caused it to be regarded by Physicians generally as the best and most soothing Kidney Alternative and Anti-Lithic agent yet known in the treatment of

Urinary Calculus, Diabetes, Gout, Cystitis, Rheumatism, Hæmaturia, Bright's Disease, Albuminuria and Vesical Irritations generally.

## BRIGHT'S DISEASE.

**DIETETIC NOTE.**—A rigid milk diet has given good results in many cases.

*Allowed.*—Fish, sweet breads, sagoploca, macaroni, baked and stewed apples, prunes, etc.; spinach, celery, lettuce, etc., may be used in moderation in connection with a milk diet, without impairing its effect, and with great comfort and enjoyment to the patient.

*Avoid.*—Strong coffee and tea, alcoholic stimulants, soups and made dishes.

We have had prepared for the convenience of Physicians Dietetic Notes, suggesting the articles of food to be allowed or prohibited in several of these diseases.

These Dietetic Notes have been bound in the form of small perforated slips for Physicians to distribute to their patients. Mailed gratis upon request, together with our latest compilation of case reports and clinical observations, bearing upon the treatment of this class of diseases.

## LAMBERT PHARMACAL COMPANY,

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Please mention The Times and Register.

## GOUT.

**DIETETIC NOTE.**—A mixed diet should be adopted, the nitrogenous and saccharine articles being used in limited amounts.

*Allowed.*—Cooked fruits without much sugar, tea and coffee in moderation. Alcoholic stimulants, if used at all, should be in the form of light wines or spirits well diluted. The free ingestion of pure water is important.

*Avoid.*—Fasty, malt liquors, and sweet wines, are veritable poisons at these patients.



## CH. MARCHAND'S PEROXIDE OF HYDROGEN,

(MEDICINAL)  $H_2O_2$

(ABSOLUTELY HARMLESS.)

Is rapidly growing in favor with the medical profession. It is the most powerful antiseptic known, almost tasteless, and odorless. Can be taken internally or applied externally with perfect safety. Its curative properties are positive, and its strength and purity can always be relied upon. This remedy is not a Neostum.

A REMEDY FOR

DIPHTHERIA; CROUP; SORE THROAT, AND ALL INFLAMMATORY DISEASES OF THE THROAT.

### OPINION OF THE PROFESSION.

Dr. Geo. B. Hope, Surgeon Metropolitan Throat Hospital, Professor Diseases of Throat, University of Vermont, writes in an article headed "Some Clinical Features of Diphtheria, and the treatment by Peroxide of Hydrogen" (*N.Y. Medical Record*, October 12, 1899). Extract:

"... On account of their poisonous or irritant nature the active germicides have a utility limited particularly to surface or open wound applications, and their free use in reaching diphtheritic formations in the mouth or throat, particularly in children, is unfortunately, not within the range of systematic treatment. In Peroxide of Hydrogen, however, it is confidently believed will be found, if not a specific, at least the most efficient topical agent in destroying the contagious element and limiting the spread of its formation, and at the same time a remedy which may be employed in the most thorough manner without dread of producing any vicious constitutional effect."

"In all the cases treated (at the Metropolitan Throat Hospital), a fresh, standard Marchand preparation of fifteen volumes was that on which the experience of the writer has been based."

Dr. E. R. Squibb, of Brooklyn, writes as follows in an article headed "On the Medical Uses of Hydrogen Peroxide" (*Gaillard's Medical Journal*, March, 1899, p. 37), read before the Kings County Medical Association, February 4, 1899:

"Throughout the discussion upon diphtheria very little has been said of the use of the Peroxide of Hydrogen, or hydrogen dioxide; yet it is perhaps the most powerful of all disinfectants and antiseptics, acting both chemically and mechanically upon all excretions

and secretions, so as to thoroughly change their character and reactions instantly. The few physicians who have used it in such diseases as diphtheria, scarlatina, smallpox, and upon all diseased surfaces, whether of skin or mucous membranes, have uniformly spoken well of it so far as this writer knows, and perhaps the reason why it is not more used is that it is so little known and its nature and action so little understood."

"Now, if diphtheria be at first a local disease, and be auto-infectious; that is, if it be propagated to the general organism by a contagious virus located about the tonsils, and if this virus be, as it really is, an albuminoid substance, it may and will be destroyed by this agent upon a sufficient and a sufficiently repeated contact."

"A child's nostrils, pharynx and mouth may be flooded every two or three hours, or often, from a proper spray apparatus with a two volume solution without force, and with very little discomfort; and any solution which finds its way into the larynx or stomach is beneficial rather than harmful, and thus the effect of corrosive sublimate is obtained without its risks or dangers."

Further on Dr. Squibb mentions that CHARLES MARCHAND is one of the oldest and best makers of Peroxide of Hydrogen, and one who supplies it to all parts of the country.

**CAUTION.**—By specifying in your prescriptions "Ch. Marchand's Peroxide of Hydrogen (Medicinal)," which is sold only in 1/2 lb., 1 lb., and 1-lb. bottles, bearing my label and signature, you will never be imposed upon. Never sold in bulk. FARMACIA ONLY.

*Charles Marchand*

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## Notes and Items.

SPRING.—I am the first day of spring!  
 And will you please get on to  
 My style?  
 I am soaking wet,  
 And I've got my inside pockets  
 Stuffed full of pneumonia,  
 And grip, and ague,  
 And I'm carrying a large  
 Invoice of damp, gray clouds  
 In my Bureau;  
 And a fine assortment  
 Of wind in my whiskers!  
 The ethereal mildness  
 You read about  
 Is a delusion and a snare,  
 And I am not in it!  
 I'm in league with the  
 Quinine mills,  
 And the Liver Pad factories  
 And a Weather Prediction  
 Has no terrors for me!  
 I do the weather, and  
 Greely does the prediction!  
 That's what!!  
 If you don't like me,  
 What are you going to do about it?  
 Put down your  
 Chest protector!  
 Hooray for me!  
 And the spring time  
 Comes gently Annie—  
 Rooney!—*Washington Star.*

A YOUNG practitioner, after some four or five years' practice, took to himself a wife, and being desirous of combining business with pleasure, he decided to spend the honeymoon in Chicago, and while there take in the Polyclinic on abdominal and pelvic surgery, and on his return quite innocently remarked that he had had more experience with the *abdomen* and *pelvis* during those two weeks than he had had for five years previously!—*Ex.*

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SVAPNIA has been in steadily increasing use for over twenty years, and whenever used has given great satisfaction.

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THE  
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 INFANTS AND ADULTS.

COMPOSITION: Silicate of Magnesia with Carbolic and Salicylic Acids.

PROPERTIES: Antiseptic, Antizymotic, and Disinfectant.

USEFUL AS A  
 GENERAL SPRINKLING POWDER,

With positive Hygienic, Prophylactic, and Therapeutic properties.

Good in all affections of the skin. Sold by the drug trade generally.  
 Per Box, plain, 25c.; perfumed, 50c. Per Dozen, plain, \$1.75; perfumed, \$3.50.

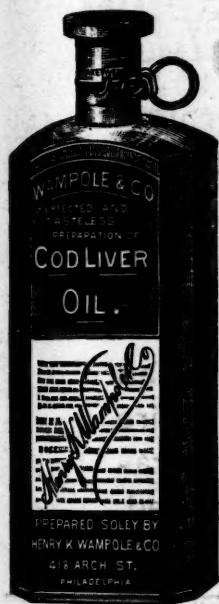
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Containing the curative agents from 25 per cent. Pure Norwegian Cod-Liver Oil. Rendered pleasant and agreeable by the addition of choice Aromatics. For full directions, see circular surrounding bottle.

We invite your attention to the "fac simile" of an Analysis made by Charles M. Cresson, M.D., certifying to the value and efficacy of this Preparation, and which we have printed on the back of our circular.

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Put up in 16-ounce bottles, full measure, \$8.00 per dozen, net.

Put up in 5-pint bottles for convenience in dispensing, and as a regular stock bottle. 5-pint bottles, each \$3.00, net.

Wampole's Concentrated Extract of Malt	2.00 per doz.
" Syrup Hypophosphites Compound	3.50 per 5-pint bottle.
" Hydriodic Acid	8.00 per doz. in lb. bottles.
" Granular Effervescent Salts.	

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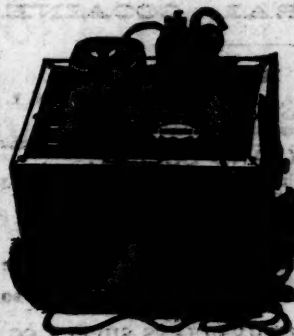
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A SUCCEDANEUM FOR MORPHIA.

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